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EDITORIAL NOTE

Indian Museum is one of the largest multi-disciplinary museums in Asia consisting of the collections belonging to Archaeology, Art, Anthropology, Geology, Zoology and Botany. The Indian Museum Bulletin has been conceived to highlight the research and study of these different subjects. In recent years Special Numbers have been issued and we could not maintain this multi-disciplinary character of this Bulletin. In the present issue we, therefore, publish the articles of various branches of studies contributed by the research scholars of the Museum as also by the eminent scholars from outside whose contribution will certainly enhance the value of the publication. The present issue contains a number of articles on inscriptions, sculptures and coins— the source material for Indian history ; prehistoric lithic tools, textiles used by the Indian tribes, medicinal gums and an account of zoological exhibits in the Museum's collection as well as decorated fillet from Mohenjodaro. It is hoped that the present volume will be appreciated by the readers.

IMAGE OF BUDDHA OF THE 11TH REGNAL YEAR OF KING MAHĪPĀLA

DEBALA MITRA

THE sculpture[1] (Fig. 1) under discussion is located against the southern flank (on the dexter) of the west wall of the so-called Pañcha-Pāṇḍava temple within the enclosure of the Mahābodhi temple at Bodh-Gaya. It is under worship within the temple. The head of the central figure of Buddha is coated with bluish-black paint, the face (except the eyes and eyebrows) and neck with yellow paint and the rest with coppery or bronze colour. The broken nose has been restored. Possibly of blackish stone (schist ?), the sculpture, in relief, is 143 cm. high.

Eight principal events (*ashṭa-mahāprātihāryas*) of the life of Śākyamuni Buddha at eight places (*ashṭa-mahāsthānas*) are grouped together in this sculpture, the important incident occupying the central part, representing his victory over Māra and assertion of his right to the seat under the *aśvattha* tree at Urubilvā or Uruvelā (Bodh-Gaya) on the eve of his achievement of enlightenment (*bodhi*). The figure of Buddha in the depiction of this major incident, being specially connected with Bodh-Gaya, is large, the other seven life-scenes in smaller dimensions being arrayed by the sides and top of this imposing figure.

With a taut body, a broad face, half-closed eyes, a raised circular *ūrṇā*, *trivali* round the neck and elongated ear-lobes, the central figure of Budda is seated in *vajra-paryaṅkāsana* on a *viśva-padma* over a *tri-ratha* inscribed pedestal in *bhūmisparśa-mudrā* (the middle finger of his right palm touching a petal). The soles of the feet bear a wheel-mark in the form of a lotus within a circle. The left palm (placed on the lap) is damaged. Buddha is robed in an *antarvāsa* (with a raised double border) with a part spread on the plain pericarp of the *viśva-padma* in the form of a fan and an *uttarāsaṅga* (with folds marked by incised lines) which leaves his right chest, shoulder and arm uncovered and a folded part of which falls from his left shoulder to his left chest. The bottom edge of the *uttarāsaṅga* has a raised double border. The head and the lower part of the conical *ushṇīsha* are covered by rows of coiled curls of hair.

Behind the back of Buddha is a cushion with a small lotus in the middle part and a quadrant of a flower at the top and bottom corners of both the ends. The uprights of the back-rest of the *siṁhāsana* are in the form of pilasters with a moulded base (above an oblong block), a mildly-tapering roundish shaft (having a projected triangle against its base) having a band with a projected half-flower and another band (between two strings), a capital having a *khurā*-shaped moulding and a torus and a bracket (in the form of an inverted *khurā*) supporting an oblong abacus. Resting on the abaci is the horizontal bar simulating the form of a *khurā* with its broad base-fillet decorated with ovoids (within rings), each alternating with a four-sided compartment (two sides being curved). From the bottom end of this bar hangs down (by the exterior side of both the uprights) a half-blown flower, from which falls down a long beaded band ending in a bud-shaped pendant. Immediately above the bar are two ornate triangular pieces, each with a central medallion surrounded by foliated leaves or petals.

Above the horizontal bar and behind the head of Buddha is the halo with the bulging central part of the two sides sharply narrowing downwards. It has for the border a semi-circular moulding (between two receded thin mouldings) relieved with a garland or cable-pattern of obliquely-arrayed beaded and plain strings held at intervals by a clasp (five in all) in the form of a diamond-shaped flower within a compartment. This border is edged by tongues of flames appearing like foliated leaves or petals. Rearing up above the halo are the branches of the Bodhi tree.

On the dexter of the halo and the ornate triangular piece (on the dexter) is the Buddhist creed in characters of the late tenth century A.D. The corresponding part (Fig. 2) on the sinister bears the initial part of a donatory inscription which reads *deyadha(r)moyam pravara-maha(hā)yānah Siṁhala-dvīpa-vinirgata-śākya-bhikshu-bhadanta(?)-Buddhasena*(or *va*). The last letter is very likely *na*, though the possibility of *va*[2] cannot be entirely ruled out. In either case, the *sya* following the name existed on the damaged part of the pedestal.

The remaining major part[3] of this dedicatory inscription runs on the top *khurā*-shaped moulding of the *tri-ratha* pedestal. This moulding bears three lines of the inscription. Some (six or seven) of the letters at the beginning of all the three lines are missing, as the major part of the dexter-*kanika* (on which these letters occurred) of the top moulding is damaged badly. The text of this portion of the inscription is as follows :

L.1. ..[*yad-atra-punyaṁ*] *tad-bhavatv=āchāry=opādhyāya-mātā-pitri-pūrvvaṅgamaṁ kṛitvā sakala-satva-rāśer=anuttara-jñān=āvāptaya-iti mahā-*

L.2 [*rājādhirāja-para*]*meśvara-paramabhaṭṭāraka-paramasaugata-śrīmān=Mahī-pāladeva -pravarddhamāna-vijaya-rājye ekādaśame samvatsare abhilikhyamā-*

L.3. [*ne*] ......[4] *pañchamyān=tithau gandhakūtī-dvaya-sahitā* ....[5] *kāritāv=iti* ||

This inscription is highly interesting not only because it helps in dating the image but it is yet another document of the gift of an image by a person from Siṁhala (Sri Lanka) which has an intimate relation with Mahābodhi since very early times. The donor Buddhasena (?) was a venerable monk (*Śākya-bhikshu*) and a follower of the excellent Mahāyāna (*pravara-Mahāyāna*) and he hailed from the island of Siṁhala (*Siṁhala-dvīpa-vinirgata*). It is not known if the monk came to Bodh-Gaya on a pilgrimage or was a resident of a Siṁhalese monastery flourishing at Bodh-Gaya. The Chinese pilgrim Hiuen Tsang (second quarter of the seventh century A.D.) has left a glowing account of the large Mahābodhi *sanghārāma,* built by a king of Siṁhala, outside the northern gate of the wall of the Bodhi tree.[6] It was meant for the Siṁhalese

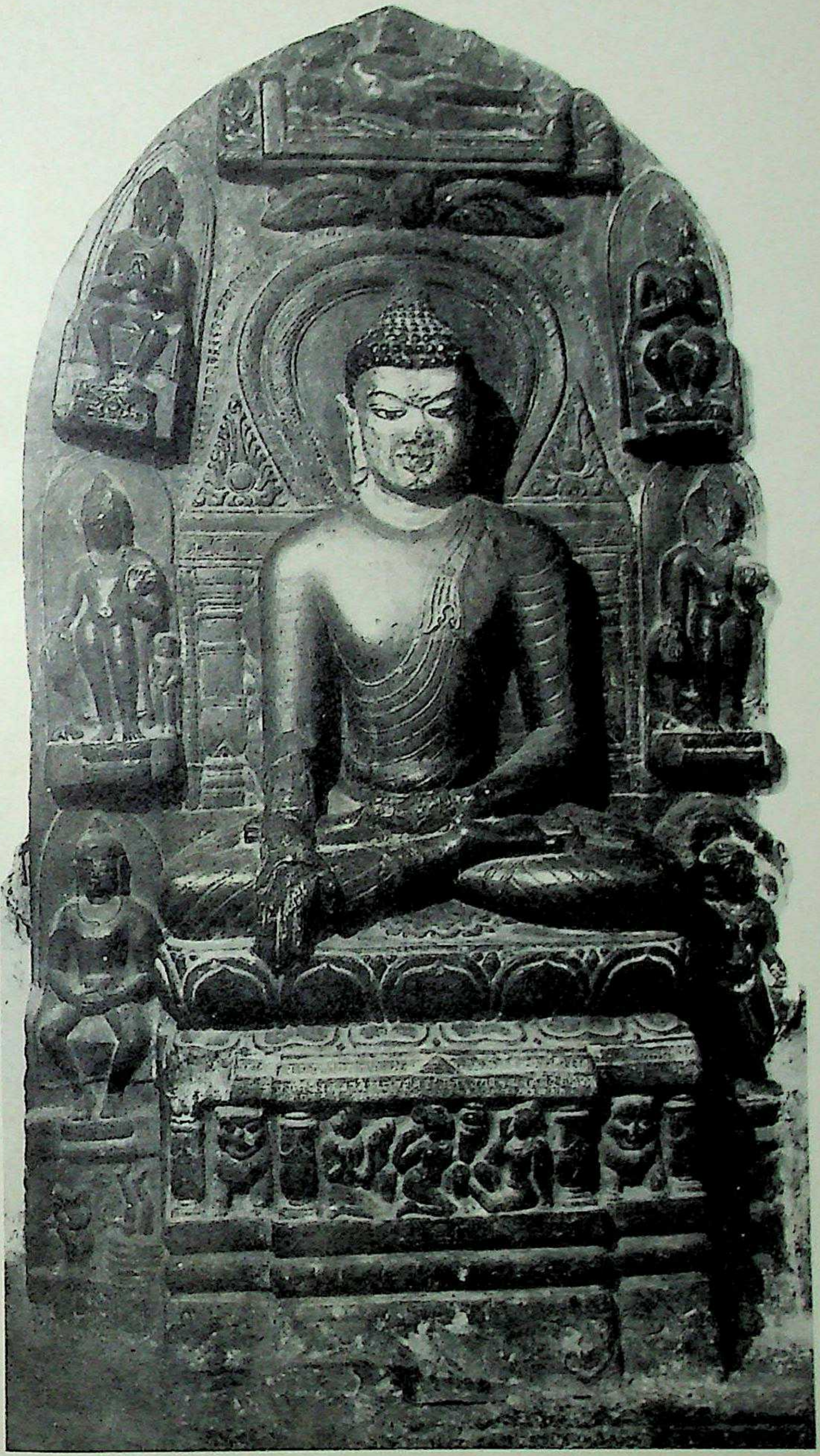

Fig. 1. Sculpture with life-scenes of Buddha

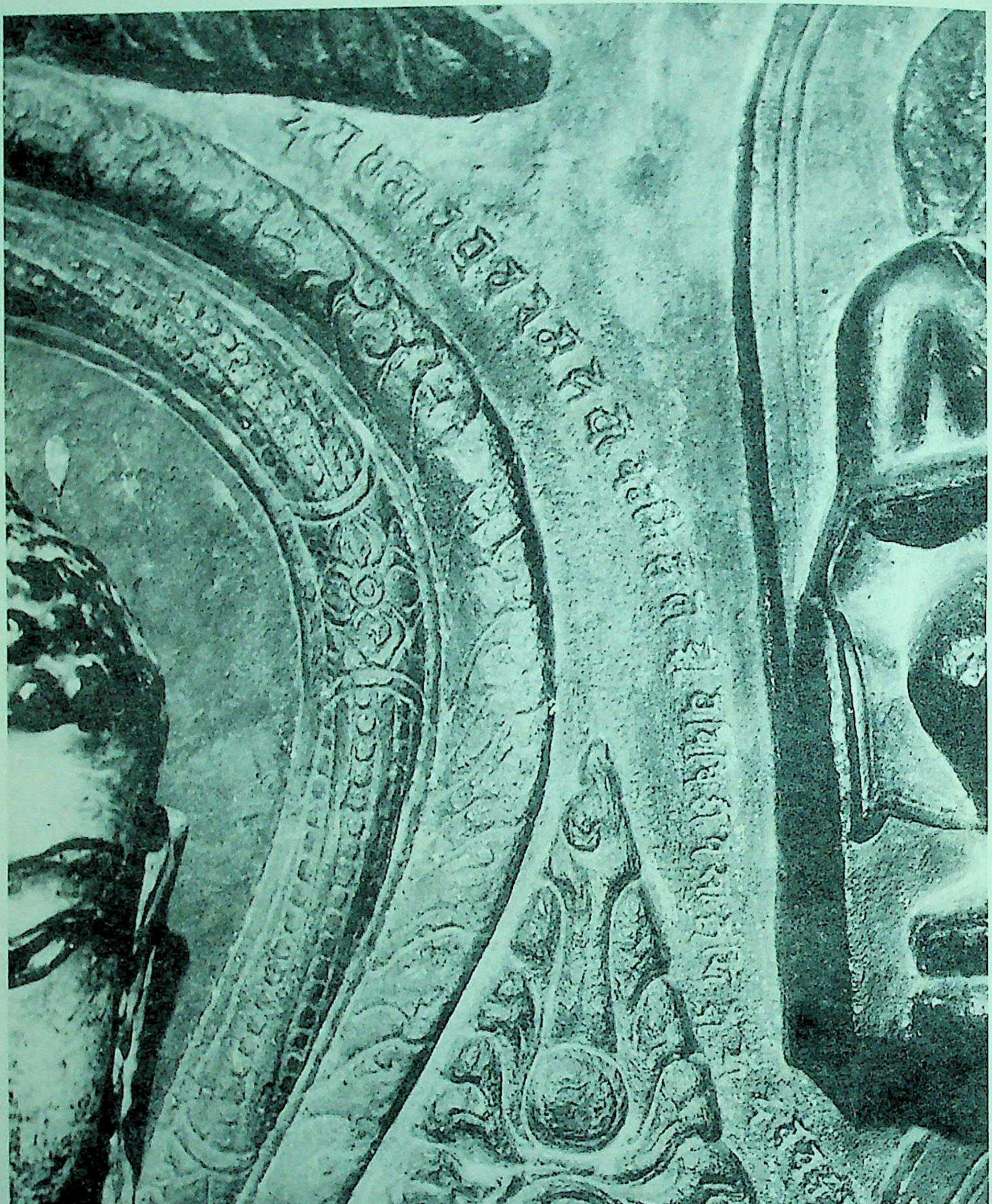

Fig. 2. Dedicatory inscription on the sinister of the halo

monks. According to this pilgrim, 'The priests of this convent are more than 1000 men; they study the Great Vehicle and belong to the Sthavira (Shang-tso-pu) school. They carefully observe the *Dharma Vinaya*, and their conduct is pure and correct'. Apparently, the residents of this monastery belonged to the orthodox Sthavira School. It is doubtful if Buddhasena (?), a staunch Mahāyānist, could have secured a place in this particular monastery. The donor recorded that the religious merit accrued from his gift was for the attainment of the supreme knowledge of all sentient beings including above all his *āchārya, upādhyāya* and parents. The pious gift included at least the image under notice and two *gandhakuṭis* or temples, one of which might have enshrined this image. Unfortunately, I could not make out the meaningful decipherment of fourteen letters of the third line, as a result of which full details of the gifts are not revealed.

The gift was made in the eleventh year of the prosperous and victorious reign of *Mahārājādhirāja, Parameśvara* and *Paramabhaṭṭāraka* Mahīpāla-deva who was devoted to Sugata (Buddha). This king was Mahīpāla I of the Pāla dynasty. According to D. C. Sircar, he ruled from A.D. 977-1027.[7] The recent sensational discovery of a copper-plate grant of the reign of the Pāla king Mahendrapāla near Jagajjibanpur[8] (District Malda, West Bengal) will change to some extent the Pāla chronology worked out by D. C. Sircar.

Below the top moulding are three compartments (one each on the two *kanikas* and one on the *rāhā*) made by four pilasters with a *khurā*-shaped base, a baluster-shaped shaft (with a triangle at its base) enclosed by a band having a triangular half-flower in its middle part and a capital having a moulding with an overlying receded *āmalaka*, above which is a bracket (inverted *khurā*). Within the central compartment on the *rāhā* are: (starting from the dexter) (i) a half-kneeling monk (representing the donor) with a garland in hands, (ii) the bejewelled half-kneeling earth-goddess with her raised right palm above her right shoulder and a *ghata* (possibly covered by a lid) on her raised left palm (the elbow resting on her raised knee) and (iii) the dejected seated bejewelled Māra with his raised right palm touching his face and the left palm on the pedestal. Within the two compartments of the *kanikas* is the forepart of a lion (facing).

Below these compartments is a running *tri-ratha paṭṭikā* with a receded underlying facet, below which is a *tri-ratha* torus, underneath which is the *tri-ratha* base-*khurā* of the pedestal.

The back-slab (with a slightly-pointed crown) of the image depicts seven other incidents from the life of Buddha.

Buddha's birth at Lumbinī is represented on the sinister above the bottom niche containing a bejewelled seated male with his damaged palm of the extended right arm resting on the knee. Dressed in a long *śāṭī* (with folds shown by double incised lines), held by a broad girdle with a row of large beads, and an *uttarīya* worn in an *upavītī* fashion, *Māyādevī* is standing, with the lower part of her bent left leg crossed behind her stretched right leg, on a *viśva-padma*, and holding with her right palm the branch of a tree which bends over her head, her left arm hanging down. She is adorned with anklets with hanging pendants, rows of bangles held by a vertical clasp, an *upavīta* of two strings (one beaded), armlets with a projecting triangular piece, a necklace with a row of pendants and a central ornate piece, an ear-stud in her right ear, a *kuṇḍala* in her left ear and a *mukuṭa* with a broad band and two projected half-flowers. The hair is arrayed in the form of a bun above her left shoulder. From her right side has emerged the new-born baby (Gautama), in a springing posture, with two palms folded near the chest. Below Gautama is the standing figure of Śakra holding with her both palms a piece of cloth for receiving the baby.

The incident represented on the corresponding dexter relates to the offering of honey by a monkey at Vaiśālī. Buddha, with both shoulders covered by a *saṁghāṭi* or *uttarāsaṅga* (folds unrepresented) with a raised border, is seated on a plain seat (against a raised background with an arched top and a moulded border) in *pralambapadāsana* with a bowl in his palms, his feet resting on a *viśva-padma*. Below the *viśva-padma* is seen a monkey standing with slightly-bent knees and holding a bowl of honey in the pose of offering it to Buddha. Close by is a ring-well into which the same monkey is falling or jumping down after offering the bowl to Buddha; the legs (with feet upward) are seen above the ring-well, the remaining part being within the well.[9]

The scene, immediately above the scene of the presentation of honey, represents the episode of taming the infuriated elephant Nālāgiri at Rājagriha. Buddha is standing on a *viśva-padma* with a slight flexion and with both shoulders covered by a *saṁghāṭi* or *uttarāsaṅga* (folds not indicated) with a raised border. His hanging right palm is damaged,[10] the slightly-raised left palm holding a folded part of the upper robe. Near his right foot is the partially-kneeling submissive figure of Nālāgiri. By the left side of Buddha is a standing monk (presumably his faithful disciple Ānanda) with an alms-bowl on his left palm, holding with his right hand a staff capped by a ring (*khakkhara*).[11] Behind Buddha (together with the monk) is the raised back-slab (having an inconspicuously-pointed top) with a border of two bands.

The corresponding sinister shows a similar figure of the standing Buddha (the head damaged) on a *viśva-padma*, in *vara-mudrā*, his slightly-raised left hand holding a folded end of the *saṁghāṭi* or *uttarāsaṅga*. Above his head is an umbrella, the umbrella-bearer Indra being absent. Near the right foot of Buddha is a kneeling figure (perhaps Utpalā or Utpalavarṇā)[12] with the palms and head touching the ground. The scene represents Buddha's descent at Sāṅkāsya from the Trayastriṁsa heaven.

The scene above represents the Miracle of Śrāvastī, though the ancillary details are not depicted. Buddha, with both shoulders covered by the *uttarāsaṅga* or *saṁghaṭi* (with a raised border, folds not indicated), is seated on a high seat in *pralambapadāsana* with both feet resting on a *viśva-padma* and palms in *dharmachakra-mudrā*. Behind him is a raised background with a border and a pointed top.

The figure of Buddha on the corresponding dexter is identical with the preceding figure in sitting posture, *mudrā* and raised background. But the scene represents Buddha's First Sermon at Mṛigadāva, as a wheel (on a base) flanked by a deer on either side is carved against the *viśvapadma* on which his feet are resting.

The scene above the branches of the Bodhi tree shows the *mahāparinirvāṇa* at Kuśinagara. Buddha is lying on his right side on a bed (with its edge relieved with a row of lotus-petals) on a bedstead with two curved side-planks. His head rests on a pillow, the palm (with a raised mark) of his folded right arm resting on the pillow and his left arm extended over the left side of his body. By the side of the side-planks is a seated mourning male figure. Above Buddha, in the centre of the back-slab with an arched top is a *stūpa* with a bell-shaped drum above the low projected base, a plain dome and a conical top (covered with wax). On either side of the *stūpa* is a pair of disembodied hands, the pair on the dexter beating a drum and the other pair on the sinister playing on a pair of cymbals.[13]

REFERENCES AND NOTES

[1] A drawing of this image, got prepared by Francis Buchanan (later on Buchanan-Hamilton) has been illustrated by Montgomery Martin on Pl. X (Fig. 6) of his *History, Antiquities, Topography and Statistics of Eastern India; comprising the Districts of Behar, Sahabad, Bhagulpoor, Goruckpoor, Dinajpoor, Puraniya, Rungpoor & Assam*, Vol. I (London, 1838), p. 74. Rajendralala Mitra, *Buddha Gayā* (Calcutta, 1878), pp. 133, 197 and 198, Pl. XX, Fig. 3 (also a drawing). Susan L. Huntington, *"Pāla-Sena" Schools of Sculpture* (Leiden, 1984), p. 57, Fig. 54. Janice Leoshko (ed.), *Bodhgaya, the site of enlightenment*, Marg Publications, Bombay, 1988, p. 40, Fig. 14 (on p. 42).

[2] In that case we have to assume the existence of a letter like *ka* (after *va*) in the damaged part of the pedestal.

[3] A. Cunningham, *Archaeological Survey Report*, Vol. III (Calcutta, 1873), p. 122, Pl. XXXVII, No. 5. Rajendralala Mitra, *Buddha Gayā*, pp. 197 and 198. *The Indian Antiquary*, Vol. IX, 1880, p. 114. A. Cunningham, *Mahabodhi* (London, 1892), p. 65. R. D. Banerji, 'The Pālas of Bengal', *Memoirs of the Asiatic Society of Bengal*, Vol. V, no. 3 (Calcutta, 1915), p. 75, Pl. XXX. Susan L. Huntington, *op. cit.*, pp. 221 and 222.

[4] This broken part might have contained the name of the month and fortnight (*Śukla or kṛishṇa*).

[5] Meaningful decipherment of these fourteen letters could not be accomplished.

[6] Samuel Beal, *Si-Yu-Ki: Buddhist Records of the Western World*, Popular edition, Trübner's Oriental Series (London), Vol. II, pp. 133-35.

[7] *Pāla-Sena yuger Vaṁśānucharita* (in Bengali), (Calcutta, 1982), pp. 14, 81 and 179.

[8] Gouriswar Bhattacharya, 'The New Pāla Ruler Mahendrapāla: Discovery of a Valuable Charter', *South Asian Studies*, Vol. 4, 1988, pp. 71-73.

[9] The fall of the monkey into a well is not narrated by Hiuen Tsang in the context of the offering of the bowl of honey to Buddha at Vaiśālī. However, in connection with another episode of offering of honey by a monkey to Buddha near Mathura, Hiuen Tsang noted: 'At this time a monkey holding *(a pot of)* honey offered it to Buddha. Buddha hereupon ordered him to mingle it with water, and to distribute it everywhere among the great assembly. The monkey, filled with joy, fell into a deep hole and was killed. By the power of his religious merit he obtained birth as a man.', Samuel Beal, *op. cit.*, Vol. I, pp. 182 and 183.

[10] The palm being damaged, the lion in the palm is not recognizable. The legend of Buddha miraculously causing 'five lions to proceed from his finger-ends' to subjugate the elephant is recorded by Hiuen Tsang, Beal,

op. cit., Vol. II, p. 150. The lion in the right palm of Buddha in the episode of taming Nālāgiri is a common representation in the sculptures and reliefs of Bodh-Gaya.

[11] The *khakkhara* is a monk's staff with rings attached to its top to make jingling sound, which the monks carry to announce their presence in front of a house during their begging rounds. This jingling staff is also used by monks during their travel to scare away the animals from their path.

[12] The legend of the nun Utpalavarṇā, anxious to be the first to see Buddha as soon as he alighted at Sāṅkāśya, has been narrated by Hiuen Tsang; Beal, *op. cit.*, Vol. I, pp. 204 and 205.

[13] The copyright of the photographs illustrated with this article belongs to the Archaeological Survery of India.

A DECORATED GOLD FILLET FROM MOHENJO-DARO, PAKISTAN

ELISABETH C. L. DURING CASPERS

IN a niche in the south-eastern corner of House XIV, Block 2 of the VS Area at Mohenjo-daro of the Indus Civilization, lying at a depth of *ca.* 1.07 metres below the surface, Sir John Marshall discovered a very thin gold fillet, measuring 42 cms. in length, by 1.8 cms. at its widest point in the centre and tapering to 1.3 cms. wide at the carefully rounded ends (VS 3091) (Plate 1). Marshall (1931 : II, p. 527) states "These ends bear a very rough design made by embossing the metal with a blunt point and in each there is a small hole which has been pulled slightly out of shape by tension. The metal is 0.05 inch (=0.127 cm.) thick and is bright yellow gold which still retains a good deal of its original spring. The design on the two ends of this fillet is illustrated in Pl. CXVIII, No. 14 and resembles the cult object that is always represented in front of the unicorn animals present on most of the seals". His accompanying drawing (Plate 1) of one end of the fillet only, shows the device very clearly outlined by a double line of embossed dots. The upper element is of an angular shape and the punctuations curve inwards very acutely to form a narrow "pole" connecting with the base bowl. This seems to have the usual rounded base but with the top rim curved upwards centrally to the "pole", which is drawn in without a break in the outlining dots. The basic shape of the base bowl may be compared with an almost shield-like emblem of Vats 1940 Pl. XCI, No. 256 althogh it lacks the tassels present on this Harappa seal.

In the Mohenjo-daro Site Museum in Pakistan is a similarly shaped gold fillet of approximately the same measurements (Plates 2-3), and this also shows a comparable 'sacred brazier' design executed on either of the rounded extremities. However, there are small but striking differences in detail between this and the Marshall drawing referred to above. Firstly the device, though formed by embossing the metal with a blunt point, distinctly has three, concentric rows of dots outlining the entire drawing of both upper and lower portions of the emblem. These appear to have had a whitish infill. On the central top of the upper drum-shaped portion is a distinctive knob, which has occasionally been recorded as an addition to the design as found on the intaglios. The customary post on which the emblem is raised, consists of a row of punctuations ending in a small hole, which may have served as an attachment for securing the fillet to the headdress or hair. As the measurements of this gold strip are merely 42 cms. long, this makes its postulated use as a real headband or fillet tied directly across the forehead rather inconceivable, particularly as it may be assumed that this decoration was intended for and adult, possibly a male.

Althogh the excavation reports of the time mentioned several fillets—if that is really what they are—from hoards at Mohenjo-daro and Harappa, only one is recorded as having this sacred design. Therefore, despite the discrepancies enumerated, one wonders whether the one drawn and described by Marshall should not be identified with the one on exhibition at the Mohenjo-daro Site Museum. Whether they are one and the same still does not provide an answer for the curious position of the punctuated emblems, since once the fillet was arranged in customary fashion around the head and secured at the nape of the neck then the 'sacred brazier' decorating the extremities would meet post to post, secured by the perforations at these points, and the emblems would be invisible from the front. Unless, of course, the fillet was intended to clasp at the front, perhaps incorporating an additional ornament. Here, the supposed magico-religious significance of this so-called 'incense burner', 'sacred brazier' or more recently identified 'Soma filter' (Mahadevan 1985) may provide sufficient evidence for justifying such a reconstruction. Towards the end of the fourth millennium B.C. contacts between ancient Sumer and the early phase of the Harappa Culture resulted in a transfer of the Sumerian late protoliterate representation of an 'one-horned' male bovine drawn in profile to the northern regions of the Indus Valley system where, on arrival it was reshaped to become a misconstrued and misunderstood version of the original bull in profile with only one of its two horns showing. The ear of corn which often accompanies the 'one-horned' bull device in the late fourth millennium Sumerian representations could have arrived in the Indus Valley either simultaneously, already constituting an intrinsic part of the whole composition, or else it has travelled by itself to these northern parts of the Indus Valley plains. The early archaeological material from Harappa shows both the 'one-horned' bull, *i.e.* the 'unicorn' and the ear of corn, *i.e.* the 'sacred-brazier' or 'incense burner' as independent designs in their own right. The two are then united, as they so often were in their place of origin, becoming one of the most characteristic features of the consecutive square steatite stamp seals of the Indus Civilization.

The occurrence of single 'incense burner'/'sacred brazier', *i.e.* ear of corn representations on the tiny steatite tablets from the earliest levels so far at Harappa, which most probably served an elementary administrative purpose as simple records of ingoing and outgoing foodstuffs and other supplies, where they most likely represent grain or barley in a wider sense (During Caspers forthcoming *a* & *b*) and the portrayal at the same site of singly standing 'one-horned' male bovines on round or oval-shaped mould-pressed 'sealing amulets' (During Caspers 1982, 1984) could suggest one of the modes in which these two elements travelled.

Since these early contacts between the Near East and the Indus Valley regions were most likely the result of trading activities—for instance lapis lazuli and agate and cornelian are some of the commodities already imported into Mesopotamia during the earlier prehistoric 'Ubaid period'—there appears to be no overriding argument against attributing the knowledge of the original Sumerian representations and their subsequent intermediate stages of copying and recopying to a trading network through the north connecting the Near East and the northern Indus plains.

Since one of the basic principles of commerce is to gurantee the authenticity of the owner's commodity before despatch, it may be assumed that late Protoliterate Mesopotamian cylinder seals, or at least their clay impressions, were known to people inhabiting the areas outside the actual Mesopotamium sphere of political influence. Traces which would corroborate this hypothesis and the intermediary stages responsible for the copying and recopying of the original Mesopotamian portrayals still have to be discovered, nor is there, as yet, any supporting evidence that the early pictographic script of Uruk III and IV times of *ca.* 3200-3000 B.C. was known in the northern Indus plains and that, therefore, the ear of corn pictogram, denoting grain or barley in the Sumerian context, could have been the progenitor of what is generally called the 'incense burner' or the 'sacred brazier' of the Indus Culture and occurring for the first time on the microscopic administrative tablets from the earliest Harappa levels.

However, when we take another look at the terracotta sealings or 'sealing amulets', also from Harappa, we cannot escape the impression that their round or oval surface is trying to imitate the circular contours of the Near Eastern cylinder seals and that the 'one-horned' bovines modelled in relief on these terracotta mould impressions copy the 'one-horned' cattle carved on Near Eastern cylinder seals which, after having been rolled on to a clay surface, would leave the 'one-horned' beasts standing in relief.

If it is a valid assumption to equate the ear of corn of Sumerian glyptic art, or perhaps even the early Sumerian pictogram denoting grain or barley, with the 'incense burner' or 'sacred brazier' representations on the minute Harappan tablets, then an echo of the deep religious concept attached to the ear of corn pattern in ancient Mesopotamia may also be found in the Indus Civilization. This could imply that the thin gold band from Mohenjo-daro, which is the theme of this paper, bearing an 'incense burner' or 'sacred brazier' on its two extremities may well have served a religious purpose used in such ceremonial practices and rituals as those centering on fertility in a wider sense.

Reference has been made to the curious position of the two punctuated emblems which would be unseen from the front if this gold band was secured behind at the nape of the neck. An alternative was also offered suggesting that this fillet could have been clasped at the front, perhaps incorporating and additional ornament. In the light of the suggested religious or symbolic value of the two punctuated 'incense burners' or 'sacred braziers' placed at the two ends of this gold fillet, any additional ornament to be secured by means of the two holes perforating the extremities, not only would have to be of a corresponding religious significance, but would also have to have been at least 10 centimetres wide in order to comfortably bridge the gap left in between the two ends, if this gold band had, indeed, be intended to be worn across the forehead. Equally important to note is that this ornament would have to have been fashioned of a very light material, such as leaf gold, in order to prevent stretching or tearing of this very thin fillet or pulling it down or out of position by its weight.

Taking the unfortunately very sketchily rendered headgear of the so-called 'Priest King', which shows a round medallion placed in the centre of the forehead as a guide, apparently fastened onto the band which was tied around the head a limited number of ornaments both from

Mohenjo-daro and Harappa with an apparent magico-religious or a symbolic significance may serve as hypothetical suggestions of what such an additional ornament could have looked like.

The first to be considered is a honey-coloured steatite amulet or pectoral, roughly circular in shape, with a diameter of 6.8 × 6.3 cms. and a thickness of 1.5 cms. This bears a beautifully executed representation of a 'unicorn', with deep insets for inlay. One of these insets on the centre of the torso is like a kidney lying with the calyx pointing towards the underbelly. A design enclosing the animal appears to contain a double kidney configuration. The outer, somewhat damaged, rim is cut back suggesting that it may at one time, have been framed, possibly in the same way as a double-sided stamp seal of the Dilmun Culture from Failaka island in the Arabian Gulf, in a gold circlet. Regrettably, the piece is presently glued to a plastic board and the back cannot therefore be examined, but Mackay mentions that it is plain and slightly rounded (Mackay, 1938 vol. I, p. 546, II, Pl. CXL, No. 59). This amulet was discovered at a level of 2.28 metres below the surface in the DK Area at Mohenjo-daro (8036) in Block 9, House VII, Room 21.

Next to be considered is a flat, ornamental plaque of roughly circular outline, with a truncated end and made of whitish faience (Marshall 1931, vol. II, pp. 196, 480; vol. III, Pl. CLVIII, No. 12 Hr. 5463-52.1621). It measures 4.23 × 4.75 cms. and its thickness is 0.84 cm. It was found in Room 87, House IX, Block 2 in the Hr. Area,1.22 metres below the surface and recently incorporated in the Late-Inter Period at Mohenjo-daro (Urban & Jansen, 1987, p. 265). It bears an intaglio design which may originally have formed the setting for an incrustation. The pattern consists of two kidney shapes, one within the other, with the calices compatibly placed and directed towards the flattened aspect. Surrounding the line of the outer kidney, is a clockwise arrangement of crescent-shaped indentations. The plaque is unpierced, the back is flat, and the purpose unknown, although the shape suggests that the entire object may, in itself, have been an inlay.

The suggestion that the kidney may be considered as a *pars pro toto*, possibly conveying a magico-religious, a symbolic or even an amuletic function, as such joining the gamut of mystico-religious motifs the real significance of which forms a half-glimpsed and insubstantial background to our knowledge of the Indus Civilization, is further enhanced by the occurrence of a pendant from Harappa, made of a gold sheet beaten out from behind to form three kidney shapes lying within each other with their calices in an upward position. The pendant has two gold suspension hooks on the underside. The sunken surfaces between the kidney outlines again show a pattern of parallel striations, in this case ribbed bands of blue faience. This beautiful piece belongs to a large collection of jewellery (no. 8060) which was discovered in the courtyard of House 2 in Mound F at a depth of 2.33-2.54 metres below the surface (Vats 1940, vol. I, pp. 63-64, 440; vol. II, pl. CXXXVII, no. 8).

A fourth piece of jewellery, also a pendant, comes from Mohenjo-daro and , like the one from Harappa mentioned above, is only relevant in this context in that the suitability of the suggested magico-religious connotation of the kidney design it bears would also permit differently shaped ornaments as a frontal clasp of the gold fillet under discussion. This find, although of a less precious nature, comes from the DK Area in Mohenjo-daro, Block 3, House V, Room 8 and was found at a depth of 2.09 metres below the surface. It is a copper or bronze cast pendant with two small suspension holes at the top, measuring 4.8 cms. in length, 4.1 cms. in width and it is 0.4 cm. thick. This pendant is also in the shape of three concentric kidneys with their calices compatibly spaced and directed towards the suspension holes. Mackay mentions that the sunken portions in between the kidney shapes had been purposely left rough in order to facilitate a paste inlay (Mackay 1938, vol. I, p. 545, vol. II, pls. CXXIV, no. 27, CXL, no. 35).

From this survey of the still extant ornamental pieces from the Indus Civilization which, it was hoped, could either by dint of their combined shape and decoration or merely by their decorative device alone be sufficiently suggestive to warrant an educated conjectural reconstruction of a piece of jewellery suitable for having been placed in between the two extremities of the gold band or fillet under discussion.

Returning again to this piece of very thin, yellow gold, 42 cms. by 1.8 cms., which Marshall has described as being a fillet, and which, according to this assumption, would originally have been tied around the head and fastened at the nape of the neck by means of a cord or a thread, most likely also made of gold, passing through the two small holes in the carefully rounded ends. Marshall mentions that the gold still retained a good deal of its spring and that each of the two holes had only been pulled slightly out of shape by tension (Marshall 1931, p. 527).

If we are dealing with a fillet and this was, indeed, the way in which this gold band was originally used, the fastening device by which at least 10 cms. had to be gapped, appears rather awkward, the more so as the two embossed 'incense burner' designs, on which, so it would appear, the main attention must have been focussed, would have been unnoticed, had this fillet been fastened at the nape of the neck, as normally expected. Needless to say, that it would appear highly unlikely that this gold band was fastened across the forehead and a position at the side of the head can be disregarded. Finally the tying and untying of the fillet, even when infrequently done, would have left far more visible pull or stretch marks around the two holes than mentioned by Marshall.

This leaves us only with a reconstruction in which an additional ornament was inserted in between the two rounded ends of this gold band. However, the latter is only 0·127 cm. thin and the estimated size of about 10 cms. or more for such an additional ornament in order to make the whole arrangement sit comfortably round the head, would appear to exclude the use of any other material but thin gold leaf or, perhaps, silver.

The embossed 'incense burners' impose a further limitation on the presence of an additional ornament. The base end of each of the poles terminates in their corresponding holes and this leaves no doubt that the decoration was meant to be seen at full length. Whatever shape we may consider as best suitable or whatever designs we may think as most appropriate to support these two 'incense burner' devices, the fact remains that the latter two emerge, as it were, from these two perforation holes and this therefore, largely predetermines the available possibilities. In fact, only two suggestions come to mind both, it must be granted, equally inelegant and ungraceful and quite in contrast with the superb finesse witnessed by the Indus Valley jewellery and by the few pieces discussed earlier on.

The first reconstruction to be considered is a construction in which a thin piece of metal is placed under the two extremities of this gold band, being of comparable thinness to comply with the fillet itself, and large enough to fasten it properly on the two perforation holes. However, in this case the two rounded ends of the fillet will not only remain visible but could even severely interfere with the decoration on this additional central ornament. Besides such an arrangement would almost certainly have left marks of wear and tear or traces of soldering on both sides of the rounded extremities, although they have not been mentioned by Marshall nor noticed by me when studying the fillet of Plates 2-3.

A second reconstruction—albiet equally awkward—bridges the opening left between the two rounded ends of the fillet, by construing a terminal piece which would lie over the two extremities therefore obscuring them. However, the weakness of this concoction lies in fixing this terminal ornament to the underlying ends of the fillet since not only would the outer edges have to correspond accurately with the holes of the fillet beneath, but the fact that the pole ends of the 'incense burners' rise from these small holes, certainly indicates that these poles were not supposed to be obscured. This would have provided practically no room for any way of fixing the two elements together and certainly wear and tear marks or traces of soldering would be noticeable, which they are not.

We are therefore forced to disregard any of the four pieces of ornamentation discussed in this paper as suitable for a hypothetical additional ornament on the grounds of their small size, their shape and above all, their weight, which could not have been supported by this thin fillet. The two reconstructions suggested above are not in accordance with the high artistic level of Indus Valley jewellery and we shall, therefore, endeavour to suggest a different use for this thin gold band with its embossed decorations.

Marshall mentioned that the small holes of this gold band had been pulled slightly out of shape by tension. Had this band indeed been worn as a fillet by a human being, this, one would expect, would be noticeable around the edge of the holes nearest to the tapering ends. The use of a magnifying glass, however, revealed that it was the opposite sides of the two holes which have been slightly pulled together suggesting that this band was fastened between two fixed points and when stretched into position, not the edges of the holes nearest to the tips of the fillet but the inner edges of the holes where the base ends of the 'incense burners' emerge, had received the greatest tension.

Although being the only one, or two examples if we consider Plates 2-3 as being different from the one described and illustrated by Marshall (Plate 1), bearing an 'incense burner' decoration, other gold fillets have been mentioned by Marshall and it seems perinent to quote here *verbatim* (Marshall 1931, p. 527) "A set of three very curious gold fillets was found with the jewellery from the HR site that has already been described. No. 6, the largest [HR 4212*a(q)*] is a band of very thin gold averaging 0.4 inch in width, with a small hole at each rounded end and another at the bottom of the V-shaped piece in the middle. If these fillets were worn as they are photographed, it is possible that a cord was threaded through the hole in the middle of the fillet to support a heavy nose or forehead ornament. These three fillets are somewhat out of shape, for each had been rolled into a ball, presumably for re-melting. Yet despite their age and ill treatment, the gold still retains a certain amount of spring. The pottery head in Pl. XCIV, 1, shows, I imagine, how these fillets were worn. At the top of Pl. CL1 (A, 1) a broken gold band [HR 4212*a(x)*] is shown which had also been rolled up. This band measures 6·2 inches long by 0·75 inch wide and has two holes at each end and also a row of small holes along the upper edge. The row of small holes perhaps served to secure the fillet to a head-dress, or, if worn the other way round, beads or sequins may have been fastened along it. This ornament was stiffened by a very ingenious device, the metal being twice box-pleated lengthwise not far from either edge. On either side of the gold bangles, Nos. 2 and and 3, are coiled up fillets [HR 4212*a* (*t* and *u*)] of another form respectively measuring 16 inches long by 0·52 inch wide and 15·1 inches long by 0·35 inch wide. Both these fillets taper slightly towards the rounded ends, each of which is perforated with a hole". Then follows Marshall's description of the decorated fillet which forms the crux of this present paper.

As seen from the above description also two plain , undecorated gold fillets were found at Mohenjo-daro, again tapering slightly towards the rounded ends and measuring 40·64 cms. and 38·35 cms. respectively. Unfortunately Marshall does not mention the thinness of these fillets but the fact that their width is only 1·32 cms. and 0·88 cm. respectively and that they are even somewhat shorter than the decorated gold band discussed above—which, in fact, would make their use as a fillet tied around a human head, even more problematical—appears to justify the assumption that they too are about 0·127 cm. thin.

Marshall considers the three V-shaped gold pieces illustrated on his Plate CLI and described on page 527 as face ornaments (Plate 4). Although the measurements have not been given, except for the information that the largest of the three averages 1·01 cms., the photographs appear to have been reduced approximately ·.5 times which would provide each half of these ornaments with a 15-18·5 cms. length measured from the pierced extremity down to the bottom of the V. Marshall compares these V-shaped ornaments with a clearly demarcated ridge placed above the eyes of one of the Indus Valley female figurines (Pl. XCIV, 1), but what Marshall considers to be a V-shaped ornament is in this case simply a pair of heavily accentuated eyebrows, the short vertically incised lines representing hair.

As in the case of the very thin gold fillets, it would be difficult to visualize these V-shaped pieces as having been worn by human beings, especially if the small hole at the bottom of the V was meant to support a heavy nose piece or a forehead ornament as Marshall suggests when he says "In modern Sind, especially heavy nose ornaments are often supported by a thread tied to the hair" (Marshall 1931, p. 527). Their description as being very thin, pierced by only small holes, their approximate length of 15-18·5 cms. and their very V-shaped combined with a possibly additional decoration hanging from the small hole at the bottom of the V-shape, would certainly disagree with a reconstruction in which these ornaments were fixed onto some kind of a hair-do, a head or hairband or onto the head itself. Such an arrangement would, not only have covered a good deal of the face of the person, but the thinness of the metal and the smallness of the non-reinforced holes cannot possibly have withstood any substantial pulling or lateral tension.

We may conclude from the above that neither of the fillets, decorated or plain, nor the V-shaped ornaments could have been worn by human beings, yet, as an object, they were obviously highly treasured and some of them had been rolled into a ball, presumably for remelting and re-use (Marshall 1931, p. 527). Had they been personal ornaments, this would, indeed, have been a peculiar way of dealing with them, because, one would have thought they would have been coveted as family possessions and strangely enough, this fact appears to corroborate the assumption that we are not dealing with personal possessions.

Unfortunately, the human representations in the round do not support this, since the stone statutary from Mohenjo-daro and in our particular case the statue of the "Priest King" is rendered too elementary to reveal reliable details and the hairstyles and head-dresses of the terracotta female figurines show a plethora of loosely applied elements, so far barely understood. Clearly, the Indus Valley craftsmen and artists must have had other materials at their disposal with which to express the human form, if we are to interpret the gold fillets and the V-shaped gold pieces as ornaments created to embelish human representations. What would be more natural than to imagine the use of wood, bone or perhaps ivory as a means in which the Indus artists could have, quite handsomely, fashioned the human body and physiognomy, most likely an age-old tradition already thriving before the birth of the Indus Civilization and still a prosperous industry after the latter's disappearance, continuing to flourish well into historical times.

Late third-early second millennium B.C. cuneiform records from Mesopotamia refer to the import of specific pieces of furniture, such as tables, chairs and turrets made of various kinds of wood which entered southern Mesopotamia from Meluhha, which is the name used to denote the Indus Civilization or the Harappa Culture. If the Meluhhans excelled at wood-working and carpentry to such an extent that wooden luxury furniture from the Indus regions was sought after by Sumerian society then they would almost certainly have extended their skills to the carving of human and animal statutary or other objects for pleasure or worship.

The stone statues from Mohenjo-daro are often described as presumably representing gods or, at least, a category of divine beings. With the likely exception of the so-called 'Priest King', who may well have been the centre of veneration or worship of some kind (During Caspers 1985[a]), there are no solid grounds for supporting the divine nature of any of the other Mohenjo-daro stone statutary of human beings. Yet, certain scenes on the seals and 'sealing amulets' and

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the occurrance of pottery masks portraying horned humans (During Caspers 1985^{b}, 1987) point to the existence of supernatural, semi-divine or possibly even divine beings in the religious thinking of the Indus people and the importance of a tree cult with the added awareness of tree spirits (During Caspers forthcoming c) provokes the claim of beliefs and religious practices centred upon the veneration of trees.

Idols or effigies intimately related to and closely integrated in this tree worship or representing other expressions of religious ideas, venerated in a human form or at least considered to represent one, could well have been adorned with precious metals and jewellery and specific facial characteristics such as eyes and eyebrows may indeed have been achieved by the application of thin pieces of gold such as the three V-shaped gold ornaments. Being easily fixed to the wooden surface with the aid of tiny nails, would be a satisfactorily explanation for the measurements of these ornaments, the smallness of the perforated holes and the absence of wear or pull marks. It may be remembered that in early Mesopotamia the use of inlay for eyebrows and eyes was a common feature and that the stone sculptures from Mohenjo-daro also show this sufficiently obvious device of using bone or shell to represent the eyes.

It, therefore, appears that fillets such as those discovered by Marshall were similarly secured by using tiny nails and, depending on the size of the wooden statues, they could either encircle the entire circumference of the head being fastened at the nape of the neck or fitted in such a fashion as to allow the incorporation of other decorative elements.

What was and inconceivable reconstruction for ornaments worn in real life, can be easily performed on a wooden surface and the two embossed 'incense burners' or rather ear of corn representations of the gold fillet which has formed the essence of this paper can have stood pole to pole at the front of the head, the rounded ends of the fillet itself attached to any additional decoration made of any material best equipped to form a religious harmony.

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Fig.1

Gold fillet with embossed 'incense burner' design from Mohenjo-daro. Marshall 1931, Pl. CXVIII, No. 14.

Fig.2

Gold fillet with embossed 'incense burner' design from Mohenjo-daro. Mohenjo-daro Site Museum, Pakistan. Photograph by J.C.M.H. Moloney. *Courtesy of the Department of Archaeology of Pakistan.*

Fig.3

Same gold fillet from Mohenjo-daro as Plate 2, now showing the other rounded end with embossed 'incense burner' design. Mohenjo-daro Site Museum, Pakistan. Photograph by J.C.M.H. Moloney. *Courtesy of the Department of Archaeology of Pakistan.*

Fig.4

Gold ornaments from Mohenjo-daro, Marshall 1931, Pl. CLIa.

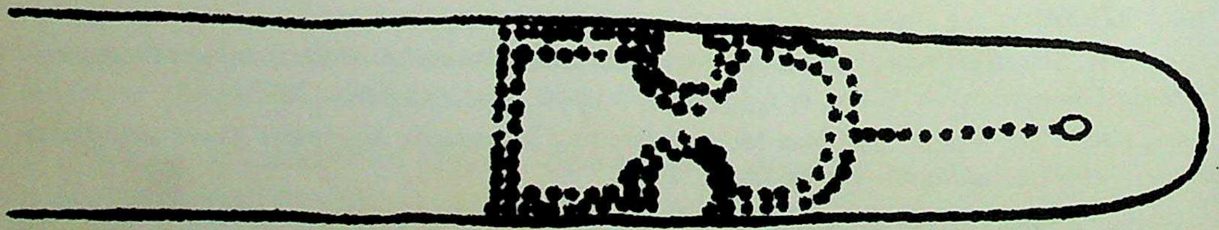

Fig.1

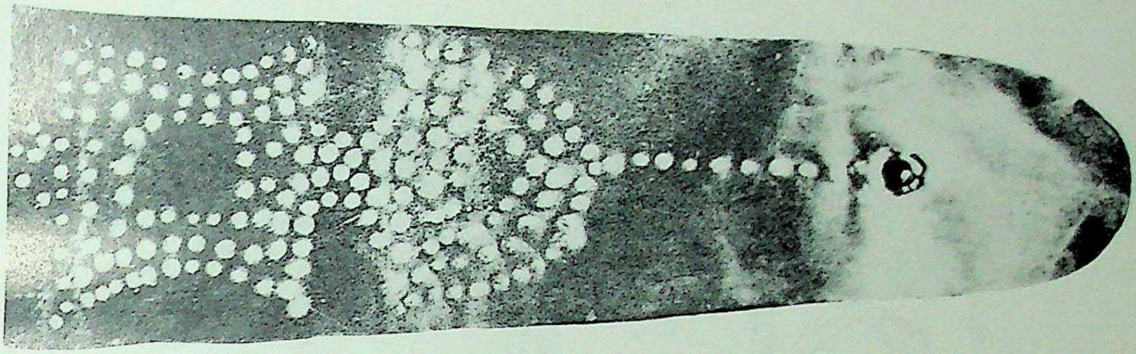

Fig.2

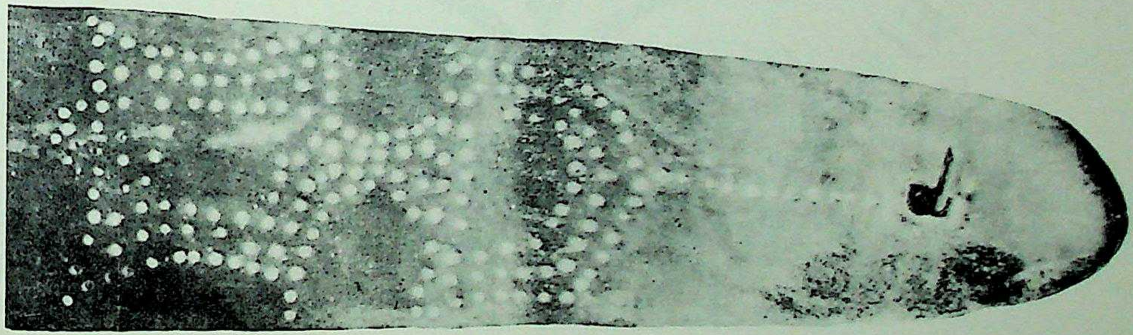

Fig.3

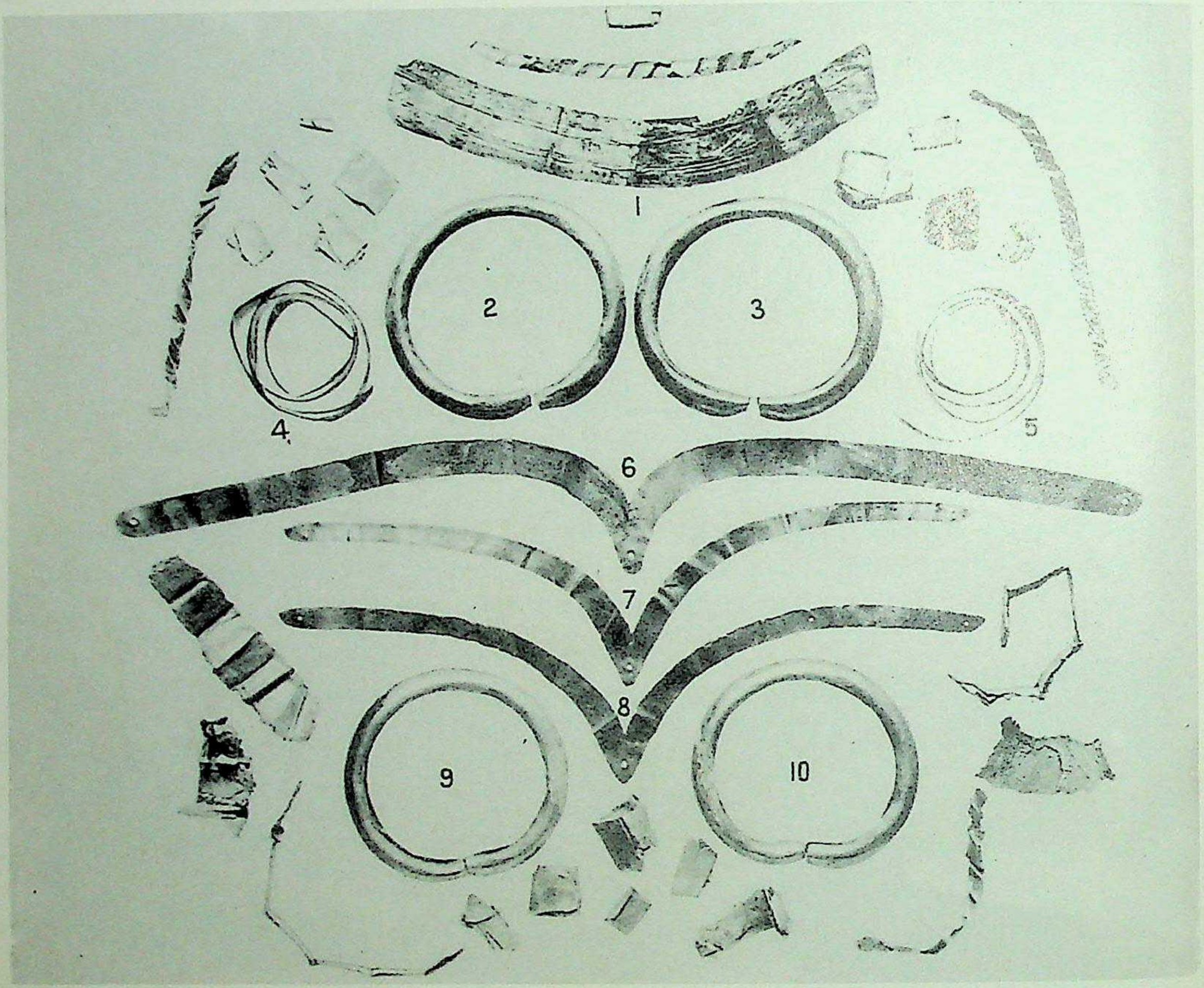
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Fig.4

YAVANA INSCRIPTION FROM MATHURĀ

PUSHPA THAKUREL

THE recovery of an inscription is a boon to a museum that unfolds the unknown facts of the history of the region. The Govt. Museum of Mathurā, which is internationally famous for its marvellous collection of Mathurā School of Art, has very recently acquired one three-line inscription[1] on traditional red sandstone with big spots, engraved in early form of Brahmi script, from Sri Deen Dayal Shastri, resident of village Maghera, district Mathurā on Chhatikara Goverdhan Road about 17 kms. from Mathurā City. Since it was found by Sri Shastri in his field while working, nothing could be said about the installation spot of the inscription with this one fact, but through the contents it is established that the inscribed stone was fixed in an outerwall of a well. The shape of the stone used for this very purpose is slightly curved like a bow.

The inscription (ht. 13.5 × b. 1.02 cms) under discussion discloses a thrilling evidence of YAVAN RULE over Mathurā. It runs as following :

"यवन रज्यस्य[2] षोडशोत्तरे वर्ष शते 100+10+6 (116)
हेमत[3] मासे 4 दिवस[4] 30 एताये पूर्वाये[5] 1
ब्राह्मणस्य मैत्रेयस गोत्रस्य घोषदत्त पुत्रस्य सार्थवाहस्य
वीरवलस्य मातुरे होगणिय उदपानि 2
पुष्करिणि सह पुत्रेन वीरवलेन वधुये भागुरेये पौत्रे
हि च शूरदत्तेन ऋषभदेवेन वीरदत्तेन च पुण्यं वर्धतु । 3

Since the Sanskrit language used therein is not very much grammatically correct, a little exercise over the inscription is needed to draw the correct interpretations. The following is the translation :

'In the year 116 of the Yavana reign, in the fourth month of hemanta, on the thirtieth day (on this very date) Brāhmaṇa of Maitreya Gotra, son of Ghoṣadatta-Sārthavāha, (a trader) Bairbala (got constructed) a well and a *puṣkariṇē* for the daily rituals of his mother with his son Veerbala, wife Bhāgurī and grandsons Surdatta, Ṛṣabhadeva and Veerdatta (so that)virtues may flourish.'

The names appeared in the inscription ending with DATTA and that too in a Brāhmaṇa family reminds us to think of 'Datta' rulers at Mathurā, in the 1st century. B.C.,[6] who could be directly or indirectly connected with the family mentioned in the inscription.

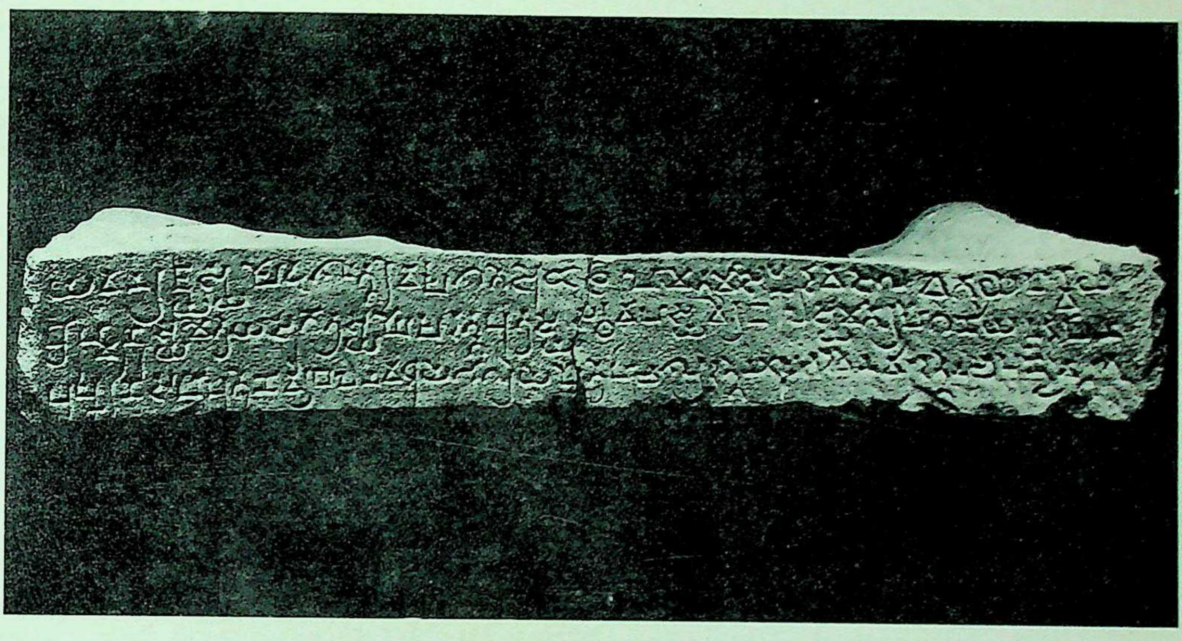
The year one hundred sixteen of Yavana rule as mentioned in the inscription in question, is of a valuable importance. If this number of the year is substracted from 185-180 B.C. it comes to 70-65 B.C., when Dattas were in rule in some parts of Mathurā for some little period. The coins recovered from Mathurā region[7] have special mention of the names of Datta rulers like Puruṣadatta, Uttamadatta, Rāmdatta, Kāmadatta, Śeṣadatta and Bhavadatta. The numismatic evidence establishes the Datta dynasty ruled over Mathurā after the end of Mitra kings. Cunningham[8] recovered several coins of Datta kings during his visit to the town.

Now we again come to the main point that the mention of the year 116 of Yavana rule by a Brāhmana family in the inscription obviously establishes the existence of Yavana over Mathurā as a ruler. It also corroborates the literary evidences like Yuga Purāṇa of Gārgī Saṁhitā[9] and Mālvikāgnimitram[10]. The great Sanskrit poet Kālidāsa introduced Yavana attack faced by a Śuṅga force under the able command of Vasumitra[11]—the grandson of Puṣyamitra—the Śuṇga monarch, under the process of horse-sacrifice, whereas the earliest amongst the Purāṇas—Yuga Purāṇa written in Sanskrit with Prākrit created in the 1st century B.C. and accepted as an authentic evidence of source of Indo-Greek History. Gārgī Saṁhitā tells us that Yavana advanced through the invasion, who reached Kusumadhawaja (Pāṭaliputra) capturing Sāketa, Pānachāla and Mathurā. But under whose kingship ? To get the answer to this big question all the direct sources are silent but nevertheless by considering all the circumstantial positions and conditions, this could be solved.

It is well known fact that in the times of Puṣyamitra Śuṅga, Yavana attacked on India under the worthy command of Demetrius who was accompanied by Appolodotus and Menander.[12] Once again we put a question to ourselves that who was the king or ruler of Mathurā out of these three Yavanas ?

Rapson[13] believes Menander as a General of Demetrius I who rightfully got the throne after the end or death of Demetrius. The death of Demetrius and Appolodotus and the return of Eucratides back to Bactria, gave an opportunity to Menander to enjoy all the titles of a king[14] and he was the only Yavana chief who must have ruled over Mathurā. The empire of Menander was spread over from Mathurā in the east to Barygazā (Broach) in the west according to Przyluski[15]. And when he was recalled from Pāṭaliputra, he left a big part of the Gaṅgā-Jamunā Valleys behind him and prepared a new frontier to the south of Mathurā,[16] which remained the most distant town of importance towards the south-east captured by the Yavanas, the Mathurā-Delhi country has produced many Indo-Greek coins.[17] Tarn also accepted the rule of Menander over Mathurā depending on the recovery of Tod's coin[18] in the region.

The western classical sources are also unanimous on the victories of Menander in India. According to Strabo, the Greek writer Appolodotus says the conquests in India made by the Yavanas, were achieved mostly by Menander.[19] Numismatic evidences also reveal that the city of Mathurā was beseiged by the Yavanas. Cunningham[20] collected a number of coins of Indo-Bactrians from Mathurā region. With all these literary and circumstantial evidences and the recently acquired inscription gives a firm impression of the Yavana rule over Mathurā headed by Menander. Surely he was the greatest of the Indo-Greek rulers of India.



Yavana Inscription

REFERENCE

[1] Antiquity No. 88.150.

[2] The Vowel stroke for the a (yavanarajyasya) is not fully correct. However it has the meaning 'of the reign of Yavana'.

[3] 'Hemonta' is not written in the correct form, the anusvara of hemonta is missing as 'hemata'.

[4] Divasa is not a correct form. It must be 'divase'—ending with vowel stroke for 'e'.

[5] 'Purvaye' is not correct. The stroke for the long 'u' being absent. It should be written as 'puurvaye'.

[6] A. K. Srivastava. 'Mathura as known through the coins', ***Bulletin of Museum and Arch. in U.P.*** Mathura Museum Centenary No. 11-12, 1973.

[7] *Numismatic Notes and Monographs*, No. 8, p. 24.

[8] Cunningham. A., *ASR*, XX, p. 37.

[9] ततः साकेतमाक्रम्य पाज्वालान् मथुरांस्तथा ।
यवनाः पुष्टविक्रान्तः प्राप्स्यन्ति कुसुमध्वजम ॥

JBORS, Vol. XIV, p. 402; *Kern Brahi Samhita*, p. 37.

[10] Kalidasa's drama Mālvikgānimitraṁ says the story (CH I, p. 520) and is late, but mostly writers have accepted it as history, and it makes little difference in any case for it is certain that Menander—the Greek held Mathurā, both from Ptolemy and from a hoard of 96 coins of his son Strato I found there (S P Note—*A Bibliography of Greek coins hoard* NNM 1925; p. 126).

[11] ततः परान्पस्मजित्य वसुमित्रेण धन्विना ।
प्रसध्य हियमाण्भे ये वाजिराजो निर्बिततः ॥
मालविकाग्निमित्र, श्लोक 2, 15 पाज्चमोडकः

[12] W.W. Tarn, *The Greek in Bactria and India*, p. 144.

[13] Rapson, E.J. *The Cambridge History of India*, Volume I, *Ancient India* (1955) pp. 495-97.

[14] Narain, *The Indo-Greeks*, p. 78.

[15] *Legende d'Asoka*, p. 167.

[16] A.P. Toynbee, *A study of history*, 2nd edition, p.130-31. "On the historical importance of the Jumna March, the Mathura-Delhi district as a natural frontier".

[17] White head, *N.N.M.*, p. 45; Cunningham, *N.C.* 1872, p. 159, for the great hoard of 883 coins found in Sonipat near Delhi : Smith, *Ind. Ant.* XXXIII, 1904, p. 217, for the hoard recovered in Bundelkhand, south of Jumna, including forty coins of Menander.

[18] *Transactions of Royal Asiatic Society*, 314-15. Tod found a coin of Menander of the type 'helmeted bust and victory.'

[19] Tarn, p. 144.

[20] *ASR*, III, p. 14; XX, p. 37.

NOTE ON A BUDDHIST FEMALE DEITY

ANASUA SENGUPTA

IT is a well-known fact that the Buddhist pantheon accepted in its fold many of the Brahmanical gods and goddesses. Interestingly we find several images where the Brahmanical gods and goddesses are being trampled by the Buddhist divinities. No doubt this type of images were thought of or executed due to some sectarian animosity. On the basis of a few stone sculptures the present paper aims at finding a changing concept for the development of a Buddhist female deity which appears to have evolved out of this sectarian rivalry.

Our first example is a black stone sculpture from Bihar Sharif, presently housed in the Indian Museum, Calcutta (fig. 1). The female figure is standing in *ālīḍha* posture on the prostrate body of a man. She is, in fact, trampling with her left leg the head with curely hairs of the man. The latter is found to be holding a sword by his right hand while a knife in sheath is tied to his waist. The right leg of the female figure also presses the left leg of the prostrate person. Another male figure with similar hairdo stands on the proper right of the female deity. He is holding the staff of a jewelled parasol over her head. A fluttering ribbon is tied to the staff. Two flying *vidyādharas* are on the upper portion of the stella which is partly broken. The sculpture is much weathered and all the faces are damaged.

The central figure is two-armed—the right raised up in the attitude of giving a slap (*Chapeṭadāna mudrā*), while the left held near the breast shows the *tarjanī mudrā*. She wears a long lower garment, which is almost transparent. Only onefold in bold relief is shown hanging, touching the back of the prostrate figure. A long *uttarīya* passes over her arms and flutters at either side. The figure is clad with heavy but simple ornaments on neck, arms, waist and feet.

The physiognomical feature of the image displays the characteristics of seventh century eastern school of sculptures in its vigorous gesture intermingled with 'a drowsy heaviness of form'. The plain transparent drapery, the heavy and simple ornaments and the treatment of the stella which is rounded at the top with slightly diverging sides are characteristics of the early phase of the eastern school of mediaeval art.

The sculpture has been identified by schlorars like Stella Kramrische[1] as representing Durgā. It appears that the bold line touching the back of the prostrate male led them to take it as the *triśūla* of Mahishāsuramardinī. But a closer look will evidently show that the fold of the lower garment of the deity is shown here. It may also be pointed out that the hand gestures of the deity *viz*. the *chapeṭadāna* and the *tarjanī* are not very common with the Brahmanical deities apart from the fact that there is no mount of the goddess as is generally found in case of Brahmanical divinities. It is, therefore, quite certain that the sculpture in question belongs to the Buddhist faith.

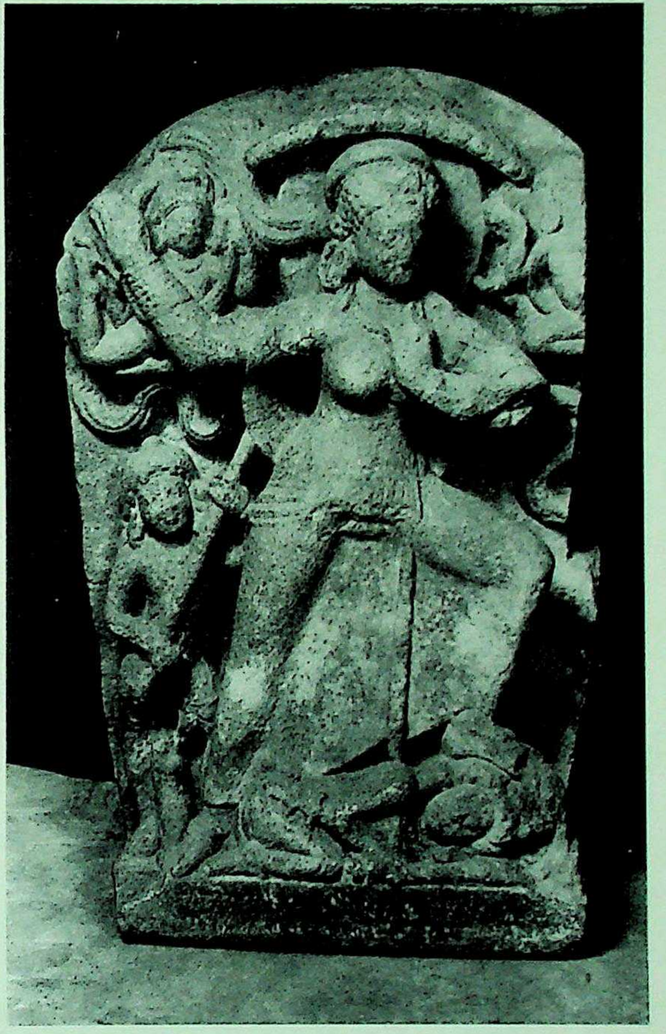


Fig.1

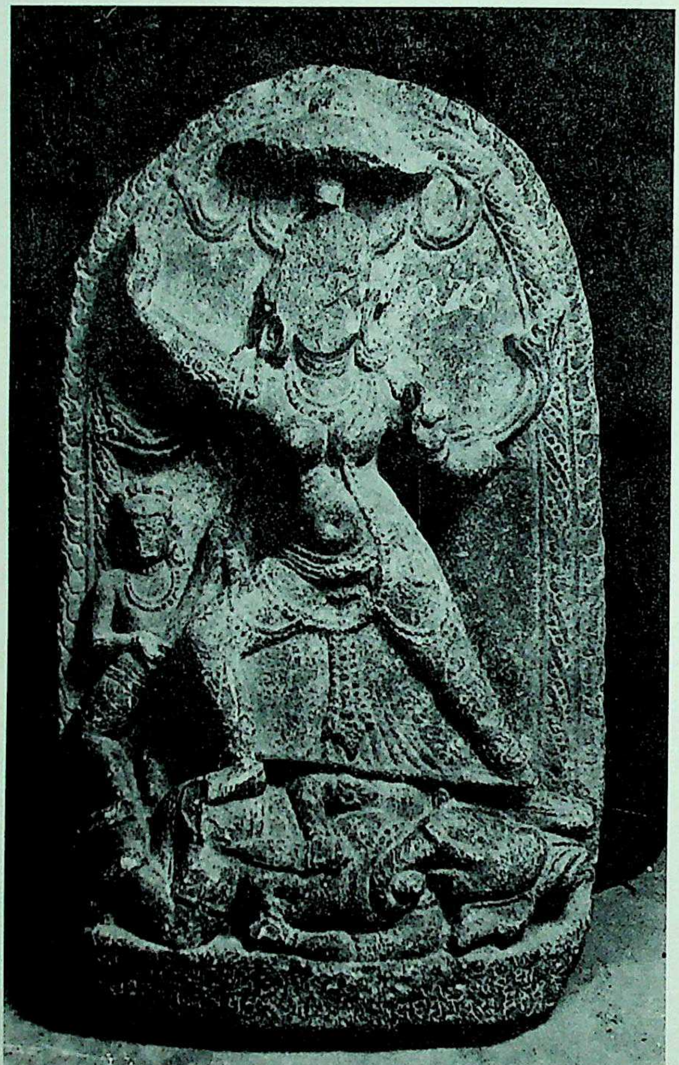


Fig.2

We may cite here example of another image from the same place (fig. 2), also housed in the Indiam Museum. This sculpture is, however, smaller in dimension showing some angularities in form. Palaeographically datable to 10th/11th century A.D. on the basis of an inscription on the pedestal, the sculpture shows a female figure, the face being greatly damaged, as standing in *pratyālīḍha*, displaying the *chapeṭadāna* by the right and the *tarjanī mudrā* by the left. A demonic figure to the proper right is holding the parasol over her head. What is interesting in this sculpture is that the female figure is trampling upon the prostrate body of the elephant-headed Gaṇeśa, who is holding a knife, by his right hand.

Similar type of images have also been found from Nālandā[2].

This type of images can very well be corroborated with the description of Aparājitā as given in the Sādhanamālā[3]. Here the Goddess concerned is described as *Gaṇapati-samākrāntā* (meaning one who tramples upon Gaṇapati). She is again described to have two arms, one face and to be decked with various gems. Her right hand should be raised, displaying the act of dealing a slap, while the left should carry a noose round the raised index finger against her chest. Her face should look terrible and ferocious. Her parasol should be raised over her head by the host of wicked and ferocious gods like Brahmā and others (*Brahmādidushṭaraudradevatā……*). She is thus regarded as the destroyer of all wicked beings.

The most interesting feature of the concept of Aparājitā is her association with the elephant-headed Gaṇapati. Our first figure has all the principal iconographical features as present in the second with the exception of the prostrate figure of Gaṇeśa. If we are to identify the first as Aparājitā then it is to be believed that her association with Gaṇeśa as such is a later addition. It is quite well-known that the *Sādhanamālā* cannot be dated earlier than the twelfth century A.D. (if the year 1165 A.D. is taken to be the earliest date for it) and none of the sculptures showing Aparājitā can be dated before the tenth century A.D. Moreover, a survey of the development of the Gānapatya sect in eastern India would definitely show that it became one of the most popular Brahmanical cults during the tenth century. Discovery of several individual cult icons of Gaṇeśa testifies to this fact. We have found at least two dated sculptures from Comilla district of Bangladesh of this divinity—one belonging to the reign period of Gopāla II[4] and another to that of Mahīpāla[5]. It is then, quite possible that the *vighnavināśana* of the Brahmanical faith would be looked down upon by the Buddhists due to the sectarian animosity between the two rival religions. And this led the Buddhists to treat Gaṇeśa as *vighna* or evil spirit who creates obstacles to the path of salvation. This was perhaps the cause why the demonic figure as represented in the seventh century sculpture was replaced by the figure of the Lord of the Gaṇas, *i.e.*, Gaṇapati, in the tenth century specimens showing the Buddhist Goddess Aparājitā[6].

REFERENCES

[1] Stella Kramrische, 'Pala and Sena Sculpture', *Rūpam*, No. 40, pp. 107-26.

[2] cf. S. K. Saraswaty, *Tantrayana Art—An Album*, p. LXVIII, pl. Nos. 184-187.

[3] *Sādhana*, No. 204.

[4] 1st year of Gopāla II (c. 952—72 A.D.) from Mandhuk.

[5] 4th year of Mahipāla (c. 981 A.D.) from Narayanpur.

[6] It may also be noted that Gaṇeśa appears in the act of a flight on the pedestal of the images of another Buddhist female deity—Parṇaśabarī.

A RARE IMAGE OF A DEVĪ FROM SINGUR, HOOGHLY

SHYAMAL KUMAR SANTRA

A four-armed image of a goddess in black basalt stone measuring 71 cms. in height and 36 cms. in breadth has been recently noticed by the writer of this note at Paltagore village under Singur Block of Hooghly district in West Bengal. Perhaps a work of c. 11th century A.D. the image now receives regular worship. The deity is enshrined in a tiny temple erected by a local person of the said village. The temple is located near a pond called 'Sitpukur' on the eastern side of the moorum road connecting Singur and Baruipara, a rail-station on Howrah-Bardhaman Chord line.

Apart from the sculptural aspect which is reflected in the subtle modelling and graceful representation, the iconographic characteristics of the image is significant.

The four-armed female deity is seated on a double petalled lotus in *lalitāsana* with a child on her lap under a nine-hooded snake canopy. The foot of the right hanging leg of the deity is on a lotus which again is placed on an elephant having its trunk raised upward. The goddess holds a fruit and a baby by her two lower right and left hands respectively; a bunch of corns is seen in both of her upper right and left hands. The iconography of the child[1] is significant, as it is shown with folded hands placed near the chest. The feet of the baby which are hanging as it sits on the lap of the Devī, are placed on a lotus. The goddess is decked in fine garments and jewelled ornaments *viz.* necklace, garland, armlet, anklet etc. She wears *Kīriṭamukuṭa* and a sumptuous chignon on the left side of her head. Apart from the figure of a devotee at the lower right corner of the *pañcharatha* pedestal, the goddess is attended by two female attendants with flywhisk and bunch of corns in their right and left hands respectively. The upper part of the stele shows on the two sides a pair of *nāga* figures flying in the clouds. The forehead of the goddess is adorned with a vertical *tilaka* mark. As the sculpture is installed on a cement pedestal, the extreme lower end of the piece is not visible. There is no trace of inscriptions on the visible portion of the sculpture.

The local people worship the deity as goddess Manasā, as its equation with Manasā is emphasised by the nine-hooded snake canopy. The origin and iconography of Manasā have been dealt in detail, by a number of scholars like N. K. Bhattasali, Prof. J. N. Banerjea, B.C. Bhattacharya etc. in their scholarly works *viz.* 'Iconography of Buddhist and Brahmanical Sculptures in the Dacca Museum', 'Development of Hindu Iconography', 'Indian Images' respectively. The present image so far the attributes and associates are concerned, though resembles closely to the Goddess Manasā, is unique of its kind.

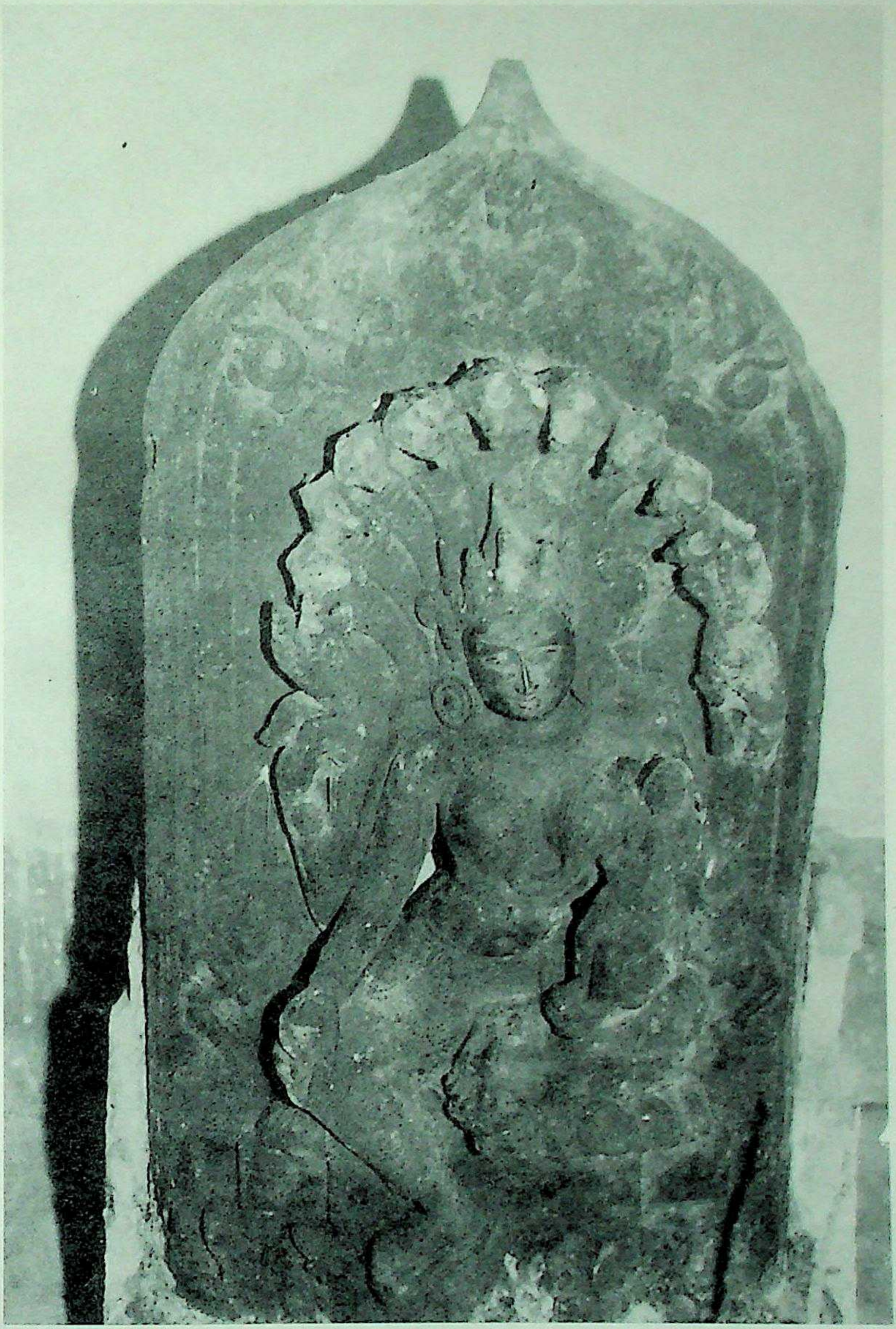


Fig. 1 Manasā. *c.* 11th cent. A. D., Singur, Hooghly.

Normally the images of Manasā, so far available in Bengal, are associated with *asta-nāgas* (eight snakes) including the multi-hooded snake placed behind the deity as an aureola. An emaciated figure of Jaratkāru and a crowned figure of Āstika are generally carved on the right and left side of Manasā. Apart from the multi-hooded snake placed at the back, the Manasā images of Bengal are found at times with snakes either in the form of an attribute or as an ornament or at places seen seated on the snake mound. Besides these, in certain reliefs snakes are shown crawling out of a pitcher placed near the deity.

The image under discussion does not altogether correspond to the description of Manasā image as described in the *Dhyānas*. Three *Dhyānas* as interpreted and translated by N. K. Bhattasali in his book 'Iconography of Buddhist and Brahmanical Sculptures in the Dacca Museum' may be cited here :

(i) "Chāruchampakavarṇābhāṅg Svarvāṅgasumanoharām ।
Isadhvāsyaprasannāsyāṅg Ṣobhitaṅg Sukshmavāsasā ॥
Kavaribhārasobhādhyāṅg Ratnābharanabhusitām ।
Svarvabhayapradāṅg Devīṅg Bhaktānugrahakātarām ॥
Svarvavidyāpradāṅg Śāntāṅg Svarvavidyāviṣ́āradām ।
Nāgendravāhinīṅg Devīṅg Bhajē Nāgeśvarīm Paṛām ॥

"I adore the goddess the supreme mistress over snakes, whose vehicle is a huge snake. The complexion of her body is like the champaka flower. She is beautiful in every limb. She has a pleased expression of face marked by a faint smile. She is decked in fine garments and jewelled ornaments. She looks beautiful with a sumptuous chignon. She feels with her devotees and protects them from all evil. She is peaceful, is versed in all kinds of knowledge and also imparts them (to her devotees)"[2].

(ii) "Kāntyā Kāñchanasannibhāṅg Suvadanāṅg
Padmānanāṅg Śobhanāṅg
Nāgendraih Kṛtaśekharāṅg Faṇimayīṅg
Divyāṅgarāgānvitāṅg ।
Chārvāṅgīṅg Dadhatīṅg Prasādamabhayaṅg
Nityaṅg Karābhyaṅg Mudā
Vandē Samkaraputrikāṅg Visaharīṅg
Padmobhavāṅg Jāṅgulim ॥

"I adore the lotus-born goddess of the wilds (Jāṅgulī), the healer of (the effects of) poison, and daughter of Sankara. She is resplendent as gold, has a pleasant face beautiful like the lotus, and has hood of kings of serpents over her head. Her body, covered with snakes, is smeared with celestial unguents and all her limbs are graceful. She constantly holds in joy Protection and Boon in her two hands".[3]

(iii) “Hemāmbhojanibhāṅg Lasadviṣadharālaṅkārasaṅgśobhitām
Smerāsyāṅg Paritō Mahōragagaṇaih Saṅgsevyamānāṅg Sadā ı
Devīmāstikamātaraṅg Śiśusutāṅg Āpīnatuṅgastanīṅg
Hastāmbhōjayugena Nāgayugalaṅg Saṅgvibhratīmaśrayē ॥

“I take shelter unto the goddess, the mother of Āstika. She has a young child (on her lap). She shines like the golden lotus. Huge snakes always attend on her on all sides. She has full and prominent bosom. She holds two snakes in her two hands. She has a smiling countenance and is decorated with the ornaments of shining snakes”.[4]

On the basis of the descriptions depicted in the *Dhyānas* mentioned above, the proper identification of the present image is very difficult because these do not conform perfectly to the image under discussion. The four Manasā images, presently displayed in the Asutosh Museum of Calcutta University, represent *asṭanāga* by the seven-hooded snake over their heads and a snake held in their left hands. Manasā image in Dacca Museum and an image in the Indian Museum from Bihar (No. 6553/A16239) resemble the images of Asutosh Museum in all respects. All these six images are two armed. But there is another Manasā image in the Indian Museum from Birbhum (No. 3950) which is of the four-armed variety has seven-hooded snake over her head, but she holds by her four hands a book, a rosary, a boon and a pitcher of necter clockwise from lower right hand indicating of her source in Sarasvatī. The child in this case is absent. The pitcher below the deity appears in this case as a regular feature of the Manasā images found from Bengal. The present image has no such iconic motif. Furthermore the deity (fig. 1) is attended by two ladies seated on her both sides unlike the other images of Manasā, instead of Jaratkāru and Āstika which is usually found in the reliefs representing Manasā.[5] Interestingly, till now we have not come across of any textual reference prescribing the corn as one of the attributes of Manasā. But, as it is already mentioned, the image under discussion holds bunch of corns by her two upper hands.[6]

Since the image under discussion does not fully conform to the descriptions relating to the Manasā as found in the *Dhyānas*, we may try to trace its origin in the Buddhist and Jain serpent goddess Jāṅgulī and Padmāvatī.

Among the Mahāyana Pantheon there is a snake goddess called Jāṅgulī. The goddess is a charmer of snakes and is invoked against snake-bite. Having four hands the deity plays on the *vīṇā* by her two normal hands and holds the boon and a white snake by her remaining right and left hands.[7] The image of Singur does not correspond to the above description of Jāṅgulī and therefore, cannot be identified with the latter. But there is no doubt that the snake goddess Jāṅgulī greatly contributed to the emergence and development of the cult and image of the snake goddess Manasā in Bengal.[8]

We may possibly refer to another serpent goddess Padmāvatī of the Jains as an alternative form of this image. Dr. J. N. Banerjea observes, “Padmāvatī the *śāsana devatā* of the twenty third Jina Pārśanātha, is like him associated with snakes, and there is the folk-gooddess Manasā, one of whose name is also Padmāvatī or Padmā".[9] Jain Padmāvatī offers interesting comparison with Brahmanical snake goddess Manasā. But we may also note in this connection that Padmāvatī of the Jain Pantheon has never been associated with child. It is, therefore, clear that from the point of view of iconography the image under discussion does not seem to represent Padmāvatī the *śāsanadevatā* of Pārśanathā.

Another Buddhist goddess Hāriti may also be mentioned in these context as a probable alternative. Hāriti is always represented with a child on her lap; but she is never associated with snake. Thus the identification of the goddess under reference with Hāriti does not seem to be convincing.

The image of Singur, therefore, appears to be a rare representation, perhaps of the goddess Manasā. The presence of an elephant near the right foot of the deity as her mound is an interesting feature in this relief. Elephant though found rarely as an accompanying figure of Manasā, but this seldom appears in Bengal.[10] Besides the image of Singur is shown holding bunch of corns by her upper two hands which iconographically is also an unusual feature. Similar unconventional iconographical aspect is evidenced in the presence of two female attendants, again holding bunch of corns. Furthermore, the *asṭanāga* concept, followed usually in the Manasā images of Bengal, has not been maintained in the present image. On the other hand the deity is represented in this case as a nine-hooded one. But in all probability the iamge is Manasā and representing certain unique features. A survey of the image under discussion embodies a remarkable experiment of art and iconography of Manasā in Bengal.

REFERENCES AND NOTES

[1] The child may be the representation of Āstika the son of Manasā. Kasirama Vachaspati has quoted one *śloka* in the commentary on Tithyādi tattvam where Manasā is described as "Devīmāstikamātaraṅg Śisusutāṅg ......" Section 79.

[2] N. K. Bhattasali, *Iconography of Buddhist and Brahmanical sculptures in the Dacca Museum*, PP. 219-220.

[3] *Ibid.*,P. 223.

[4] *Ibid.*,P. 227.

[5] In this context we may refer to two images of Manasā, one from Bihar and now in Indian Museum shows Gaṇeśa and Śivaliṅga as her attendants, the other from Silghat, Assam shows two ladies on her two sides. One of the two ladies holds a *viṇā*.

[6] A two armed bronze image of Manasā from North Bengal now lying in the Indian Museum holds corn like object in her right hand.

[7] B. Bhattacharyya, *Indian Buddhist Iconography*, PP. 78-80.

[8] N. K. Battasali, P. 223. "Manasā finally succeeded in absorbing *Jāṅgulī* within herself".

[9] J. N. Banerjea, *Development of Hindu Iconography*, P. 561.

[10] Silghat image of Manasā may be referred to in this context. The image has a couchant elephant near her feet. Bhattasali thinks the representation of this elephant as the misinterpretation of the terms 'Nāgendravāhinīṅg' by the culptor of the deity.

SAKTI SCULPTURES IN THE MUSEUMS OF MADHYA PRADESH

O. P. MISRA

THE modern jurisdiction of Madhya Pradesh had been an important region of India and played significant role in the past history culture as well as different religious systems of the country right from the dawn of civilization. In the field of Hindu religion and philosophy the *Śakti* worship is an important part which is rooted in this region right from the Pre-historic age. The discovery of chalcolithic sites like Navadāṭolī, Kāythā, Dangawāḍā etc., and the evidences yielded from these sites have substantiated to the fact of previlancy of *Śakti* worhsip in the chalcolithic society. Later on, the centres like Avanti, Ujjaini, Dasapur, Kosala etc. also played glorious roles in the history and culture of the country in general and Madhya Pradesh in particular. Different scholars like Banerji, D.C. Ganguli, Bhattasali etc. have made sincere attempts to focus light on the history of *Śakti* worhsip in India. The pioneer scholars like Coomarswamy, Bhandarkar, Stella Karmrisch, V. S. Agrawal etc. have also contributed considerably. Recently some valuable monographs on the *Śakti* worship have also been published by Pushpendrakumar, Bhattacharya, Chakrawarti and M.C.P. Srivastava etc.

The present paper is a humble attempt to study the *Śakti* sculptures collected in the museums of Madhya Pradesh, in the fresh light and with new interpretations. The discovery of a number of epigraphs, editions of Sanskrit texts and Archaeological findings *i.e.*, terracotta figurines, seals, etc. have said ample light on the subject and provided considerable data regarding the prevalency of *Śakti* worship in this region.

It is evident that the worship of *Śaktis* in this region was not limited to the common people but it was patronised by the famous Gupta rulers under whom several *Śakti* sculptures were engraved on rock-surface at Udaigiri and Bodoh-Pathari etc. The practice of worship was continued even during early medieval times. When several Rajputa chiefs ruled over a major part of northern India and the *Śākta* cult gained prominence particularly in Central India. The increasing influence of the cult over contemporary society and also rulers encouraged the establishment of *Śākta-pithas*. Ultimately the famous *Pithas* at Bheraghat, Khajuraho and Gopalpur etc. flourished under the deep impact of the *Śākta* cult. The discovery of a good number of *Devī* sculptures, mostly procured from these centres are noteworthy though their number was limited in the Vedic period. It is more significant to mention that in Madhya Pradesh besides major goddesses, different other yoginis also gained importance whose sculptures have been noticed. We have also made a humble attempt to focus light on the architectural and sculptural remains related with the *Śakti* worhsip and are still *in situ* at different places of Madhya Pradesh, these are quoted every now and then wherever it was felt necessary. It is obvious to mention that numerous *Śakti* sculptures are preserved only in the museums in

India, except a few which are out of the country but the museums of Madhya Pradesh possess a major portion of these sculptures, and hence a comprehensive chapter dealing with the iconography of different *Śaktis* has been devoted. The sculptures which are subjected to our critical study mainly belong to a period ranging from c. 4th century to c. 12th century A.D.

We may, however, claim that Madhya Pradesh was only region where the sculptures of *Śaktis* were produced under different cults. These cults have been mostly patronised by the rulers of the region. The textual prescriptions and also the archaeological evidences have been discussed in detail in scientific methods. It has been confirmed that the Hinduism, Buddhism, and Jainism, as the major sects were much influenced by Tantric belief contemporaneously. Thus we may, however, claim that these centres were promoting the spread of *Śākta* cult far wide. It was only the region of Madhya Pradesh from where different branches of *Śākta* worshippers spread over entire country. The study of iconography of *Śaktis* has proved that different textual prescriptions have been followed by the artisans while producing different icons of Brahmanical or non-Brahmanical *Śakti* sculptures.

Most probably the earliest representations of *Śaktis* like those of *Sarasvatī*, *Laksmī*, *Gaja-Laksmī*, to quote a few, were attempted in this region *viz*., at Bharhut and Sanchi. The sculptures of *Sarasvatī* of different phases are preserved in the museums at Indore, Ramvan, Gwalior, Jabalpur, Vidisha etc. Other important aspects of Sarasvatī such as *Nāradī*, *Viṇāvādinī*, *Mahāvidyā-Sarasvatī* have also been displayed by the artists of Madhya Pradesh as described by the texts like the *Dipārṇava*.

Laksmī and *Gaja-Laksmī* aspects of *Devī* have also been found preserved in the museums of Madhya Pradesh. These are assigned to as early as from 2nd century B.C. to c. 11th century A.D. Dhubela Museum Hari Singh Gaur Museum, Sagar; Birla Museum, Bhopal possess the best pieces of *Laksmī*.

The sculptures of *Pārvatī* have been noticed from Tumain assigned to the Gupta period and Hinglajgarh, Naresar, Batesar, Terahi and Badoh-Pathari etc. even in the *Pañcatapas* form. *Hara-Gaurī* aspects of *Pārvatī* has been discovered from Badoh, Bhopal, Shahdol, Hinglajgarh, Asapuri and Damoh. These are preserved in the museums and belong to c. 4th century to c. 12th century A.D. These sculptures exhibit the regional variations and are preserved in Hari Singh Gaur Museum, Sagar, Jabalpur, Shahdol, Indore etc. As regards her *Gaurī-Vijayā*, *Gaurī-lalitā*, *Gaurī-Kāmadā*, and *Pārvatī-Ekamra* aspects these have been scarcely depicted but not unknown in Madhya Pradesh.

Durgā is supposed to be one of the most important aspects of *Śakti* which has been described in different *Purāṇas* like the *Agni*, and *Bhavisya-purāṇas* etc. A good number of *Durgā* images has been preserved in the museums of Madhya Pradesh. Her other names like *Ksemankarī-Durgā*, *Durgā-Sarva-maṇgalā* etc. have also been noticed and preserved in the museums of Madhya Pradesh. *Siṁhavāhini-Durgā* from Hinglajgarh is one of the representative sculptures of *c*. 10th century A.D. and is now preserved in Central Museum, Indore. *Mahisāsuramardinī* aspect of *Durgā* has also been described in different texts particularly in the *Devi-Mahatmya* chapter of the *Mārkaṇḍeya-Purāṇa*. Numerous sculptures of *Mahiṣāsuramardini* have been collected from different sites of Madhya Pradesh. These sculptures are ascribed to a period ranging from *c*. 4th century to *c*. 13th century A.D., and are the products of artists of Madhya Pradesh under different patrons. Some of the interesting sculptural pieces are preserved in the museums at Indore, Bhopal, Gwalior, Jabalpur, Rajagarh etc. These depict the typical phases of artistic traits which flourished in Madhya Pradesh, under the Paramaras, Candellas, Kalacuris and Kachhapaghatas etc. *Bhuvaneśwarī*—another aspect of *Devī* has also been brought to notice. The sculptures are preserved in the museums of Gwalior and Indore. As it is well known fact that in due course of the *Śaktis* were recognised as the *Mātṛkās* or Mother goddesses. Their number varied from three to seven as described in the iconographic texts, but it was during early medieval period when the *Saptamātṛkās* became famous, *viz*., —*Brāhmanī, Māheśwarī, Aindrī, Kaumārī, Vaisṇavī, Cāmuṇḍā* and *Vārahī*. These were depicted on the lintels of the doors of the temples in either dancing or standing or even in seated postures with their *vāhanas* and holding baby and were often guided by *Virabhadra* and *Gaṇeśa*. These *mātṛka* panels have been located at Badoh-Pathari, Udaigiri of Gupta period and in many other temples of Central India.

Many defaced panels are preserved in museums of Madhya Pradesh. The isolated sculptures of these *mātṛkās* have also been preserved in the museums. Unique sculptures of *Māheśvarī-Trimurti* in Birla museum, Bhopal, is noteworthy piece of art which is a production of the Paramara artists. Some other important sculptures are also preserved in different museums at Bhopal, Indore, Rajgarh etc. which invite our scholarly attention.

Under the influence of Yoginī-cult different *Śākta-pithas* were established in India. Major *pithas* were probably centralised only in Madhya Pradesh. At these centres, the *yoginis* were enshrined in the vicinity of the temple of Śiva the great *yogī*. As the philosophy of *yoginī* cult prefers that these *yoginis* should help lord Śiva whenever it is necessary. The *Chaushatha-yoginī* temple at Bheraghat and Khajuraho etc., were famous *pithas*. The museums of Madhya Pradesh, which posses rich collection of these *yoginī* sculptures are Archaeological museum, Gwalior, Dhubela, Jabalpur, Bhopal, Indore, Mandla etc. Besides these the stray sculptures of *yoginis* were procured from Gurgi, Shahdel, Antra, Naresar, Suhania, Hinglajgarh, Ramnagar etc. Out of these interesting sculptures of *Śri Jauti, Śri Itarala, Śri-Bha, Śri-Tararu, Bha-Nava* etc. of Dhubela Museum are the best pieces of *yoginī* sculptures. The *yoginī* sculptures of Gwalior museum are also interesting as they bear their names on their pedestals.

Likewise, the river goddesses *Gaṅgā* and *Yamunā* were represented for the first time, appeard in stone reliefs at Bharhut and Sanchi. The Gwalior Museum, H. G. Museum, Sagar, possess good sculptures of *Gaṅgā* of the Gupta period. Besides these Shivapuri, Ramvan, Raipur, Vidisha, Indore, Rewa, Gyaraspur, Bhopal, Dhubela Museums possess the sculptures of river divinities of the early medieval period. Apart from these sculptures of a number of nude goddesses were depicted by the artists of the region. Such sculptures have been noticed from Tripuri, Malhar, Jamgarh-Bhagdehi of early medieval period. The Naga cult was also flourishing in the society in central India. The sculptures of *Manasā*, Dhubela Museums stands to this point. Not only the goddesses of Brahmanical faith but also the *Yaksinīs* and *Sasanadevis* of Jaina Tirthankaras got flavour by the artists of the region after the tantric influence. The sculptures of Ambika—the *Sasanadevī* of Jaina Tirthankara Neminatha, have been noticed from different places of Madhya Pradesh. Their depiction started during the later Gupta period. The sculptures of *Ambika*, dated to from c. 6th to c. 10th century A.D. have been preserved in State museums at Bhopal, M.G.M. Raipur, Vidisha, Bhanpura, Gandharvapuri, Malhar, Ramvan etc. Unique sculptures of *Ambika* were noticed from Hinglajgarh. The sculptures dated from c. 10-12th century A.D. are preserved in central museum, Indore, Vidisha, Gandharvapuri etc. *Chakresvarī*, the *Yaksinī* of *tirthankara* Rasbhanatha, was probably depicted only during 10th century A.D. and continued upto 12th century A.D. in the region. The sculptures of *Chakresvarī* have been preserved in State museum Dhubela, Bhopal and Jain museum at Ujjain. Manovega the *Sasanadevī* of sixth *tirthankara* Padmaprabha was favoured by the artists as early as in the late Gupta period. The sculptures of early medieval period have been preserved in Khajuraho and Central Museum, Indore. The Buddhist female divinities like *Tārā* and *Chuṇḍa* were rarely depicted in art of Madhya Pradesh because the *Śākta* cult of Bra'hmanic faith dominated the society. However, a few sculptures are preserved in Sanchi, Khajuraho and Raipur museums respectively.

The study of sculptures in different museums of Madhya Pradesh have revealed some important aspects of the cultural traits which prevailed in the contemporary society, for the ornaments, drapery, hair-style, depiction of instruments, attendants of the deities and also the symbolic representations focus ample light on the social life of the people, and their different status in the society. The idea of the earlier trends the sense of folk tendencies in different regions of Madhya Pradesh could be guessed through our study. Not only this, but one can have the idea of anatomical details of human body in different regions. The outlines, natural expressions, imaginary charm like human feelings depicted in various *Śakti* sculptures prove to the degree of the excellency and prospectsness of genious of different regions.

Our study has revealed that the development of the *Śākta* cult and its impact upon the other regions of the country was important. We are confirmed that the important *Śakti-pithas* at Bheraghat, Khajuraho, Antri, Mitavali, Hinglajgarh, Badoh-Pathari etc., had definite impacts in the east, west and south India. We are sure beyond doubt that Madhya Pradesh was the only region where the tantric influence were originated and the number of *Yoginis* as well as different *Mathas* of *Pasupata*-cult like *Golaki-Matha* were flourished. Some unque sculpturs of *Bhuvaneśvarī* are preserved in Central Museum, Indore and Gwalior museums which deserve not became such sculptures have not been noticed so far, in any part of the country. Likewise, *Vainayaki*, of Birla Museum and Gwalior museums deserve special note. The worship of *Saptamātṛkā* and different *yoginis* were continued in the society. It was due to the region of Madhya Pradesh where different Rajputa dynasties like the Pratihara, Candella, Paramaras, Kachhapaghata etc. patronised the *Śakti*-cult with a great zeal.

Thus the first and fresh effort on the history of *Sakti* worship which is based on the study of *Śakti* sculptures preserved in the museums of Madhya Pradesh and also noticed scattered at various sites of Madhya Pradesh.

GUPTA COINAGE FROM BENGAL AND CONTEMPORARY TRADE & COMMERCE

CHHANDA MUKHERJEE

TO students of Indian history it is needless to repeat that coinage constitutes an important archaeological source of reconstruction of the past. In particular, coins of the Gupta Emperors which have been found from almost all over India help us to a considerable extent in enriching our knowledge of all aspects of the contemporary life. In the present study we shall examine the import of the coins found from Bengal only in the context of contemporary trade and commerce. A methodological question here arises. Are there any special features of the Imperial Gupta coins found from Bengal which are not to be found in coins discovered from other parts of the country ? The answer is clearly in the negative. But it has indeed been observed by Prof. B. C. Sen that "The collection of Gupta coins from Bengal though not rich, may be considered fairly representative of the Imperial dynasty"[1].

From the Allahabad Pillar Inscription of Samudragupta it is evident that Samataṭa was a *pratyanta* territory (frontier state) during the time of Samudragupta.

From epigraphic references also we come to know that the Guptas extended and maintained their hold over Samataṭa *i.e.* lower Bengal or Southern Bengal at least up to A.D. 507-508 and over Pundravardhana *i.e.* North Bengal up to A.D. 543-544.

For the entire period of Gupta rule in Bengal extending over more than 200 years excepting a few silver pieces, only gold coins have been found. The earliest known hoard of Gupta gold coins was unearthed from Kalighat[1a] in 1783. This hoard consisted of more than 200 coins. Unfortunately, we do not have any detailed information of this hoard because the majority of the coins of this hoard was sent to different museums and libraries in Britain. Excepting some Archer type coins of Chandragupta II, most of them belong to the later Gupta Emperors who issued only Archer type coins. In 1852 a small hoard of coins was found at Muhammadpur near Jessore[2]. This hoard is the only hoard so far discovered in Bengal which, besides gold coins, is said to have contained some silver coins of Chandragupta II, Kumaragupta I and Skandagupta. This hoard also is not classified and described properly. In 1883 a hoard consisting of thirteen gold coins was discovered at Madhavapur in Hooghly Dist[3]. Of these ten were Gupta coins. The break-up is as follows: one standard type coin may be ascribed to Samudragupta, five Archer type coins to Chandragupta II, three Archer, three Horse-man and one Lion-slayer type coins of Kumaragupta I.

In 1974 a hoard of eleven gold coins has been found from Hasnan[4] in Hooghly Dist. Of these nine belong to the Imperial Gupta rulers, the break-up being four Archer type coins of

Chandragupta II, one Horse-man type of Kumāragupta I, two Archer type coins of Narasiṁhagupta Bālāditya, one Archer type coin of Kumāragupta III and one Archer type coin of Vishṇugupta.

Besides these hoards, there are some stray findings also. From Koṭālipāḍā[5] in the Faridpur Dist. one Archer type gold coin of Chandragupta II as well as two gold coins of the same type of Skandagupta have been found. These coins are now in the Dacca Museum. Three Archer type gold coins of Vainyagupta bearing the legend Dvādaśāditya have been found from southern Bengal[6]. Before the discovery of Gunaighar inscription, this type was assigned to Chandragupta III whose existence in the Imperial Gupta line is not established.

One Elephant-rider type coin and one Archer type coin of Kumāragupta I and another Archer type coin of Skandagupta have been discovered from Mahanada[7] in the Hooghly District. One Horse-man type coin of Kumāragupta I has been unearthed from Tamluk[8] and one king and Lakshmī type of Skandagupta comes from Midnapore[9]. Again, one Archer type coin belonging to Narasiṁhagupta Bālāditya comes from Ranaghat[10] in Nadia District. One Standard type coin of Samudragupta has been unearthed from a tank at Chakdighi[11] in the Burdwan District. One Archer type gold coin of Skandagupta has been found from Bogra District (Bangladesh).[12] But this specimen is of very base gold, having an appearance almost of silver.

A solitary specimen of Archer type ascribable to Kumāragupta II was discovered from Khardah in 24-Parganas[13]. Two specimens of the Archer type belonging to Narasimhagupta Bālāditya have been found from Lakshmī Hātir Dāngā [14] in the district of Murshidabad. Several coins of this king are also to be found in the Nahar collections (Calcutta) and at the Vangiya Sahitya Parishad. One Archer type gold coin of Chandragupta II has been discovered from the village Abravati[15] in the district of Burdwan. From Chandraketugarh[16] in the district of 24-Parganas one Chandragupta-Kumāradevī type coin has been found. One Archer type coin also has been found from Simherati of this area. Now it is in the private collection of Mr. Gourishankar Dey who ascribed this piece to Samudragupta but Nisar Ahmed is of opinion that the coin should be attributed to Chandragupta II. One Aśvamedha type gold coin of Samudragupta has been unearthed from the excavations at Salban Vihara[17] at Mainamati (Comilla District, Bangladesh). One Archer type gold coin of Chandragupta II has also been found from the same place.

Seven Archer type gold coins have been found from Bainchi[18] in the Hooghly district of West Bengal. Of these three are of Chandragupta II, one of Skandagupta, two of Narasiṁhagupta Bālāditya, and one of Vainyagupta Dvādaśāditya.

It has been mentioned earlier that excepting some silver pieces Gupta coins found from Bengal are predominantly in gold. R. D. Banerjee has, however, referred to some copper coins found from Katwa in Burdwan District[19] which he attributed to Samudragupta but as neither the coins themselves or photographs there of are to be found, the theory has aroused some suspicion among scholars. The foregoing survey has made it clear that the Archer type, the commonest type of the Gupta monarchs has been found from Bengal also in a greater number. Regarding the types as well as the weight standard of the coins found from Bengal nothing new is to be stated.

From the very many Gupta inscriptions found from Pundravardhana we come to know that the gold coins called *dīnāra* were used for purchase of land. It is interesting to note that when Gupta monarchs issued coins of a heavier standard equal to Suvarṇa or sometimes more than that, they still adhered to the non-Indian nomenclature *dīnāra*.

The economic importance of these coins may now be considered. As has been just observed above the gold coins were used in land transaction. Besides, it may be seen that the find-spots of these coins are generally along the Ganges or some of its branches. It is, therefore, highly probably that these were used by merchants engaged in internal fluvial trade. That in bulk inland trade, though not in small transactions, gold coins were used is a plausible hypothesis. In contemporary literature there is no direct reference to trade and commerce of Bengal, but it has been stated that the inhabitants of Vaṅga were expert in navigation.[20] From this it is quite likely that riverine trade of Bengal along the Ganges with other parts of Eastern and Northern India was quite common.

Furthermore, from a very ancient period India maintained maritime trade and cultural relations with the different countries of the world. From the early Buddhist literature it is known that ships sailing along the Ganges made voyages to the countries of South-East Asia and Ceylon from the port of Tāmralipta. Besides, Tamalites, Ptolemy mentions, Gange which the author of the *Periplus* also refers to. The latter further indicates that very large ships called 'Colandiaphonta' used to sail between South India, Gange and the Chryse (*i.e.* Golden Land or Suvarṇabhūmi of the Indian text and roughly co-extensive with S.E. Asia). Here we have to examine the role of Bengal in facilitating this overseas trade during the period of our study. Situated on the coast of Bay of Bengal, Tamluk or Tāmralipti continued to be a very flourishing port not only of Bengal but also of the whole of Eastern India in the period under review. That through it India had intimate trade relation with Ceylon, South-East Asia and China may be inferred from epigraphic as well as literary sources.

In the Allahabad Pillar inscription of Samudragupta occurs the very significant expression *Saiṁhalakādibhiś=cha sarvadvīpavāsibhir* in connection with the independent countries which entered into diplomatic alliance with the Gupta Emperor. It is generally held that the term Siṁhala denotes Ceylon and the *dvīpas* refer to the islands of the Indian Archipelago like Sumatra, Java, Bali, Borneo etc.

Early in the 5th century A.D. from Tāmralipti Fa-hsien sailed at first to Ceylon in a merchant ship. From Ceylon he came to Java from where after a hazardous journey he finally reached China. A few years later, a prince of Kashmir turned into a Buddhist monk, named Gunavarman is known to have arrived in Ceylon. From Ceylon he went first to Lin-yi (=Champa) boarding a ship of the merchant (Tien) Chu (=*i.e.* Indian) Nan-t'i (=Nandin) and therefrom he sailed for China[21]. As a Buddhist monk, it is very probable that before leaving for Ceylon he visited the most sacred place of the Buddhists *viz.* Bodhgaya and, if it be so, the nearest port of embarkation could not have been any other Port than Tamluk. Again, from an inscription, written in North Indian Brahmi of the 5th-6th century A.D. of one Buddhagupta, an inhabitant of Raktamṛttikā and described in the inscription as a *mahānāvika* (lit. a great sailor) has been found in Wellesley Province of Malay. Some scholars identify this palce with Chi-tu or Red Earth Country in the Malay. As against this identification of Raktamṛttikā one may ask why sailing from Malay Peninsula itself, Buddhagupta would be called a *mahānāvika*. On the other hand, Raktamṛttikā near Chiruti in Murshidabad District of West Bengal, which was the seat of a large Buddhist monastery was also a centre of great commercial activity. This is evident from seal inscription found from Raktamṛttikā itself, which mentions, *Vanijah Varendrasya, i.e.* the merchant of Varendra. So in all likelihood, Raktamṛttikā of the inscription of Buddhagupta was identical with Raktamṛttikā, the great Buddhist centre of West Bengal. If it be so, Buddhagupta must have sailed along the Ganges and chartered the high seas from Tamluk.

Besides, Ceylon and South East Asia overseas trade with China through Tamluk was carried on. This is evidenced by Fa-hsien who started his return journey from Tamluk in a merchant ship. Indeed the *Sung-shu* (A.D. 420-478) informs us that in A.D. 430 '*po-tie*[22] *i.e.* fine cotton fabric, possibly muslin and *kie-pai* (*Kārpāsa*)[23] *i.e.* course cloth, both products of Ye-po country, were offered to the Chinese Emperor by ho-lo-tan, a kingdom in Java. There are differences of opinion among scholars regarding identification of Ye-po. Some scholars place it in Gandhara region, some in the Sibi country. That Ye-po denoted Gandhara was originally suggested by Chavannes and upheld by Pelliot. But subsequent research has definitely shown that Ye-po cannot be identified with any part of India. On the other hand, it has been taken as a Java type name which, if not identical with Java itself, was not far away from it.

Given the facts that *(i) Kie-pai* is definitely derived from Sanskrit *kārpāsa* and *(ii)* the date of the Ho-lo-tan Embassy to China falls during the hey-day of Gupta rule over Bengal (A.D. 430-31) and *(iii)* the Gupta emperors maintained contact with the islanders, it is not unlikely, one may even say quite probable, that the textile fabrics presented to the Chinese Emperor by Ho-lo-tan were actually items of re-export from India.

Further considering the fact the muslin and cotton textile products were specialities of Eastern India and particularly of Bengal which exported these from at least the 1st century A.D., it will not be very far-fetched to conclude that the *po-tie* and *kie-pai* stuff were products of Eastern India and more particularly of Bengal. These commodities were first exported to Ho-lo-tan in Java from an East Indian port like Tamluk and from there later re-exported to China.

From the above survey it is evident that during the period of our study maritime trade of Bengal was quite flourishing, but it is interesting to note that there is no reference to the gold coins, which undoubtedly played significant role in such international trade.

Right from the days of Skandagupta the weight of gold coins became heavier and tended to conform to the *suvarṇa* standard and sometimes more than that. But the heavier standard does not mean that the gold contents of these coins increased. A careful examination shows that the gold coins of the later rulers of the Imperial Guptas are heavily debased. Therefore, it is very much unlikely that these impure gold coins were used in international trade. The question which therefore, arsies is why then so many gold coins of the Guptas have been found from Bengal. Even if these coins were not much in use in international commercial transactions, they must have been the medium of exchange in inland bulk trade and it has been noted earlier that the find spots of these coins point to their being brought to Bengal by way of riverine inland trade along the Ganges.

However, besides trade, there might have been two other possible causes of their discovery in Bengal. First these might have been brought by the pilgrims and secondly the debased gold coins which have been found from Bengal in hoards as well as stray pieces possible indicate a condition of insecurity when the Empire was tottering. Indeed, the majority coins of the Kalighat hoard, the biggest hoard of Bengal so far known, are of the later Gupta Emperors under whom the imperial fabric was on the verge of collapse. These gold coins which served more the purpose of political propaganda of their issuers than of currency or medium of exchange were nevertheless handy pieces as blocked capital. It may thus be inferred that to tide over the difficult days of political chaos and crisis and to safeguard their economic interest some private individuals might have preferred to hoard these debased gold coins underground.

NOTES

[1] B. C. Sen, *Some Historical Aspects of Bengal Inscriptions*, p. 212.

[1a] John Allan, *British Museum Catalogue* (Gupta Dynasty), pp. cxxiv-vi.

[2] *Journal of the Asiatic Society of Bengal* (1852), pp. 401-2.

[3] *Ibid.* p. 152.

[4] *Proceedings of Indian History Congress*, (1977), p. 757.

[5] *Numismatic Supplement*, xxxvii (1923), p. 58n.

[6] *Indian Historical Quarterly* (1934), p. 195; *British Museum Catalogue*, pl. xxiii, 8.

[7] *Annual Report of the Archaeological Survey of India*,(1934-35), 1937, p. 43.

[8] *Proceedings of the Asiatic Society of Bengal*, (1886), p. 65.

[9] *Catalogue of Coins in the Indian Museum*, I, p. 127, no. 7a.

[10] *Proceedings of the Asiatic Society of Bengal* (1886), p. 65.

[11] *Journal of the Bihar and Orissa Research Society*, (1919), p. 85, pl. 1, fig. 1.

[12] *Journal of the Numismatic Soceity of India*, vii, (1945), p. 13ff.

[13] *Indian Archaeology, A Review*, (1958-59), p. 78.

[14] *Ibid.*, (1971-72), p. 72.

[15] *Proceedings of Indian History Congress*, (1969), p. 55.

[16] Dey, G. S., *Coins from Chandraketugarh*, 1974, pp. 16-20.

[17] *Bangladesh Lalit Kala*, Vol. No. 1, pp. 47-49.

[18] *Indian Archaeology, A Review*, (1981-82), p. 90.

[19] *Journal of the Numismatic Society of India*, XXXIV, p. 223.

[20] *Raghu*, iv, p. 36.

[21] Pelliot, P., Deux Itineraires de Chine en Inde, *Bulletin de Ecole Francaise d' Extreme—Orient*, iv, (1904), pp. 274-275; *Journal of Greater India Society*, (1958), p. 9.

[22] Earliest reference of *po-tie* as product of India by Fa-hsien, *cf.* Legge's edition, p. 79.

[23] *Kie-pai* (Kārpāsa), *Liang-shu*, 54, 15a.

MADAVPUR FRAGMENTARY INSCRIPTION OF THE YEAR 368

B. N. MUKHERJEE AND P. RAY

AN inscribed slab of stone was noticed recently by P. Ray in a temple at Madhavpur within the limits of Chandrakona P.S. in the Midnapore district of West Beṅgal.[1] The slab of stone is now partly broken. Its extant portion measures 30 cms × 52 cms (fig. 1).

One side of the stone bears in relief the figure of the goddess Kālī. Stylistically it can be dated to the mediäeval age.[2] The other side of the stone is engraved with an inscription of 19 lines. Unfortunately, the last portions of the first 6 lines are missing (as the relevant section of the stone is broken). Moreover, parts of lines 7 to 12 are obliterated. Again all of the letters in lines 13 to 18 are not in good state of preservation. The task of reading has been made more difficult by the poor quality of the photograph and rubbings of the inscriptions supplied to us. Hence it is impossible to give a full reading of the text or to translate it meaningfully. However, the readable portions can give us an idea about the contents of the record.

The language of the epigraph is Sanskrit, though the rules of its grammar have not been strictly followed here. There are also numerous scribal errors. The script may be recognised as proto-Bengali. The forms of the letters can very well be compared with those of the same letters in the Naihati copper-plate inscription of Vallālasena (*c.* A.D. 1159-79) and the Anulia copper-plate inscription of Lakshmaṇasena (*c.* A.D. 1179-1206).[3] So palaeographically the record in question may be dated to about the 12th century A.D.

The inscription begins with an invocation to Śiva (lines 1-4). After saluting Śiva he is eulogised. It is interesting to note that he is mentioned in line 2 as the one "whose water will bestow (on earth?) the immortal Gaṅgā" [*yasysa payasi sampradāsyatomṛita* (should be *sampradāsyate'mṛitā*) *Gaṅgā* (?)]. Here is an allusion to the legend of the descent of the Gaṅgā on earth. According to it, Śiva held by his head the brunt of the descent of the Gaṅgā but locked her water in his matted hair. However, later he released her water. So in a way Gaṅgā's water was bestowed on earth by Śiva. This alleged event is referred to here in the future tense, following perhaps the style of the authors of the *Purāṇas*.

Line no. 7 refers to a person called Suvarṇṇa (*sic.*) , who knew the art of construction [*nirmmāṇa-kausha* (*śa*)*lā*]. He might have been in charge of construction of the most excellent edifice (*vṛisha-saudha*) mentioned in line 8. There is a reference to a "virtuous abode" [*dharm(ā)dhivāsa)*] in line 11.

In line 15 we read about a temple of Siva made with (or to which was added) a tower (i.e. *śikhara*) [*yamviamānīkṛita Śivamandirah* (should be *yadvimānīkritaṁ Śivamandiraṁ*)]. At the

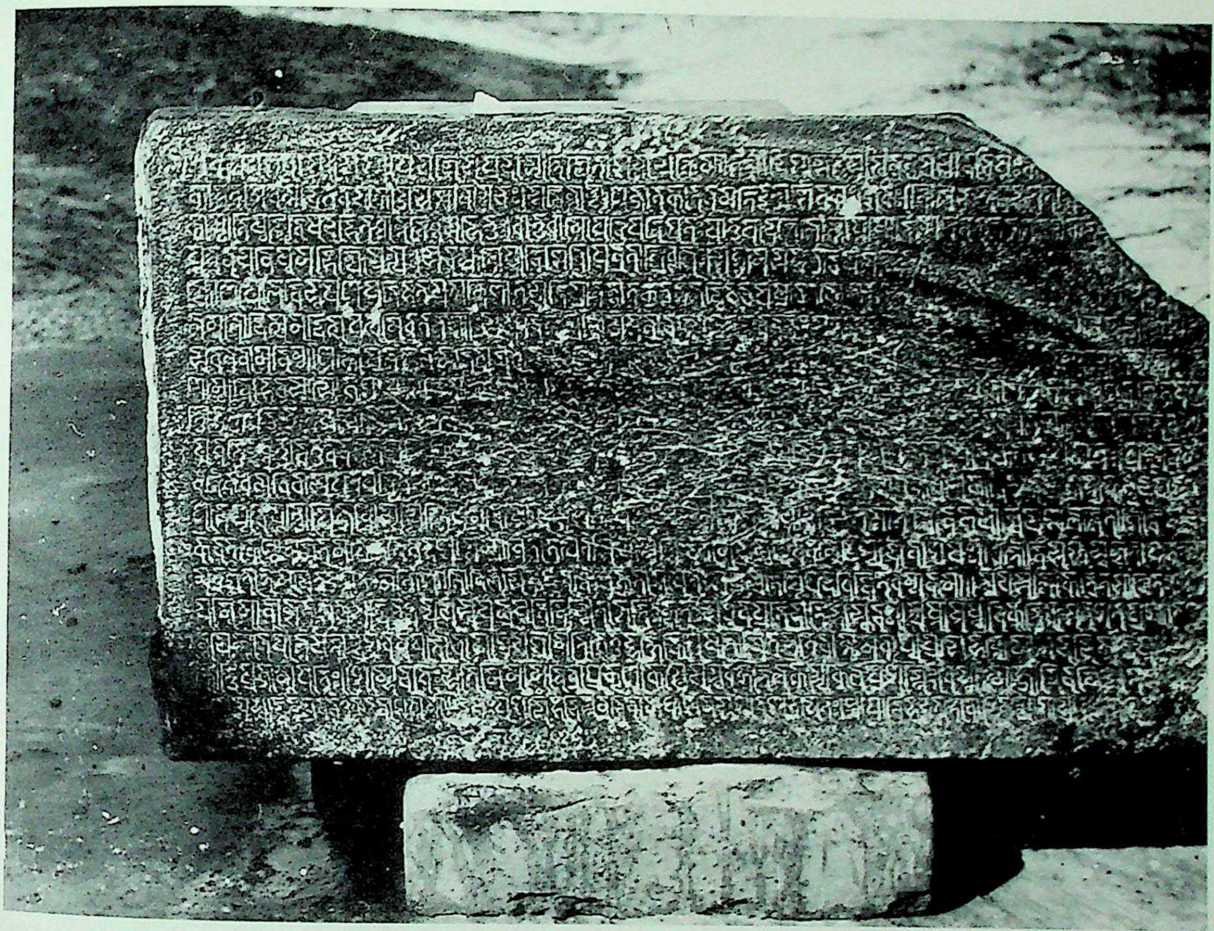


Fig. 1. Madhavpur Fragmentary Inscription of the year 368

end of this line appears a date. This portion can be read as *ashṭāshashaṭhādhika-tri-vatsara-śata pragate* .. and translated as "three hundred years exceeded by sixty-eight having gone forward (*i.e.* elapsed)". The reading and translation are supported by the expression *"s (mvat) 368"* at the end of the epigraph (1.19.)

In line 16 we find mention of one lady referred to as illustrious (*śrimatī*) Kṛittadbhakti (?), and of the month of Sahasya (*Sahasyamāsa*). This lady may have been the donor of the temple and the latter may have been dedicated in the month of Sahasya (*i.e.* Pausha corresponding to December-January) in the (past) year 368. The donor is described in line 16 as Rāḍhāsrī *i.e.* the "glory of Rāḍhā or Rāḍha." If she was an inhabitant of the area where the inscription has been found, that locality (now in the Midnapore district) was within Rāḍha at the time of the construction of the temple.[4]

Line 17 can be read as....*kīrttiprajānṃapatiḥ* (*sic*) 11 *Śambho viraḥ stutimimaṁ netrāpṛakṛinākadheyasva Vaṅgati lakasya kulapraśastiṁ dharmmatmajo nichaḥshi* ... The central portion of this line can be amended as *Śambho virāstutimimāṁ netraprakrīḍinnākādhārasya Vaṅgatilakasya kulapraśastiṁ*. This section, which is not complete in itself, can be translated as "this hero-song, which is the eulogy of the abode of Śambhu, who is the receptacle of eye-amusing sky and who is the ornament of Vaṅga."

Several letters of line 19 can be recognised, but no word can be read sensibly in the rubbings or photographs made available to us. However, it appears that a reading of the line can be offered if it is read on the stone itself or in a good photograph.

The above discussion on the fragmentary epigraph indicates that it perpetuates the construction of a Siva temple (together with two more religious edifices ?). The main (?) donor was a lady, who was an inhabitant of Rāḍha. The superintendent of construction was a person called Suvarṇa.

The icon of Śiva or the *Śivalinga*, installed in the temple, is referred to as "the ornament of Vaṅga". Most probably it had been brought from Vaṅga and re-installed in the temple concerned. During the age concerned, to which the record has been assigned palaeographically, the country of Vaṅga included the areas within the old limits of the Dacca, Faridpur and Bakarganj (or Barisal) and portion of Khulna districts of Bangladesh.[5]

The temple was constructed in the year 368. It has to be referred to an era, whose fourth century should have roughly corresponded to *c.* 12th century A.D., to which age the epigraph is palaeographically datable. The only conceivable era is that of the Bhauma-Karas (of Orissa), which began in *c.* A.D. 736.[6] The Karas are known to have extended at least once their political influence to Rāḍha.[7] The Bhañjas of Khijjiṅga (modern Khiching in the Mayurbhanj area), whose main domain was not far from the territory now in the Midnapore district, are known to have used the Bhauma-Kara Era.[8] So the occurance of this reckoning in a Midnapore record need not cause surprise. The year 368, mentioned in our epigraph, may then be placed in *c.* A.D. (736 + 368=) 1104.

The epigraph under review seems to be the first known document from West Bengal dated in the Bhauma-Kara Era and that too in an age (of the Pālas and Senas) when inscriptions were generally dated in the regnal years of the reigning kings. Herein lies the importance of the record discussed here.

NOTES

[1] P. Ray, *Medinipura Jelara Pratnasampad*, Calcutta, Sept., 1986, p. 192; P. Ray, "*Navāvishkrita Eko Prāchin Śilālipi, Śāradīyā Chetuā Saṁvāda*, (Daspur, Midnapur) 1393 B. S., pp. 1-3.

[2] *Desh* (Bengali Weekly), October, 17, 1986.

[3] N. G. Majumdar, *Inscriptions of Bengal*, vol. III, Rajshahi, 1929, pls. facing pp. 68, 76 and 88.

[4] A. Bhattacharyya, *Historical Geography of Early and Mediaeval Bengal*, Calcutta, 1976, p. 46.

[5] *Ibid.*, pp. 61-62.

[6] There is a controversy among scholars about the epoch of the era of the Bhauma-Karas of Orissa. The first year of the reckoning is fixed as *c.* A.D. 831 by D. C. Sircar and *c.* A.D. 736 by K.C. Panigrahi (K. C. Panigrahi, *History of Orissa*, Cuttack, 1981, p. 70).

An important external evidence about the date of the Kara rule is supplied by a Chinese source noticed by S. Lévi. According to it, the Chinese emperor Te-tsong (or Te tsung) received in the eleventh year of the period of Cheng-Yuan an autographed Buddhist manuscript from the king of Wu-ch'a (Oḍa or Oḍra=Orissa), who followed the practice of "sovereign Mahāyāna" and whose name was translated as "the fortunate monarch who does what is pure, the lion" (*Epigraphia Indica*, vol. XV, p. 363). R. C. Majumdar has correctly identified him with the Kara king Śivakaradeva *alias* Uttamasiṁha. This ruler could indeed be called "a lion" and also a person "who does what is pure" (*śiva*). Moreover, he was Buddhist like the king mentioned in the Chinese source [R. C. Majumdar (editor), *The Age of Imperial Kanauj*, Bombay, 1955, pp. 84-85].

Since the period of Cheng-yuan ranged from 14.2.785 to 3.2.805 its eleventh year fell in *c.* 795 (*EI*, vol. XV, p. 363; A. C. Moule, *The Rulers of China, 221 B.C. – A.D. 1949*, London, 1957, p. 59). In that year Te Tsung received a manuscript sent by Śivakaradeva.

So the year A.D. 795 could have fallen in the reign period of Śivakaradeva (I) *alias* Uttamasiṁha. At the same time it should have been earlier or at least not later than the year 54 of the Kara era, which seems to be the only known date of his son and successor Subhākaradeva I (*Indian Historical Quarterly*, vol. XII, p. 489; but see also D. R. Bhandarkar, *List of Brāhmī Inscriptions* etc., no. 1751 and *EI*, vol. XV, pp. 1f). Hence the reckoning in question could not have commenced later than (A.D. 795-54=) *c.* A.D. 741.

There are also some indications about a more specific date for the commencement of the era. The Dasapalla grant of Śatrubhañjadeva of the year 198, attributable to the reckoning in question (K.C. Panigrahi, *op. cit.*, p. 136), was issued on the day of conjunction of *Vishṇu-saṁkrānti, Pañchamī, Ravidina* (Sunday) and Mṛigasirā nakshtra. According to the calculations done by Swamikannu Pillai, such conjunctions occurred only thrice between A.D. 700 and 1100, within which period the Karas must have ruled. The dates on which the conjunction in question occurred are March 2, A.D. 812, March 23, A.D. 934 and March 23, A.D. 1029 (L.D. Swamikannu Pillai, *An Indian Ephemeris, A.D. 700 to A.D. 1799*, Madras, 1922, vol. II, pp. 26 and 270; vol. II, p. 60). S. N. Rajaguru accepts March 23 of A.D. 934 as the required date (K. C. Panigrahi, *op. cit.*, p. 69).

The above noted Chinese evidence rules out the commencement of the era after c. A.D. 795, since by that year the second king of the Kara family called Śivakaradeva I, who is also known to have used this era (*AIU*, p. 63), was already on the throne. This inference supports the acceptance of March 23, of A.D. 934 as the date of issue of Śatrubhañja's grant of the year 198 (of the Kara Era). This means that the era began in c. A.D. (934–198=)736.

[7] K.C. Panigrahi, *op. cit.*, p.77. According to the Talcher plate of Śivakaradeva I, Uttamasiṁha (Śivakaradeva I) defeated the king of Rādha and forced him to give his daughter in marriage.

[8] *Journal of the Asiatic Society of Bengal*, 1871, vol. XL, p. 161; *EI*, vol. XXV, p. 147; K. C. Panigrahi, *op. cit.*, pp. 136 and 140.

THE COIN COLLECTION OF THE INDIAN MUSEUM, CALCUTTA—HISTORY AND IMPORTANCE

DOLLY MUKHERJEE

TO trace the history and growth of the coin collection of the Indian Museum, Calcutta, one has to travel back to the last quarter of the eighteenth century, as the Indian Museum was born in the cradle of the Asiatic Society of Bengal which was founded in 1784 by Sir William Jones. After twelve years of this event, in 1796, a proposal was mooted to establish a museum at Calcutta, which did not materialize due to several reasons. It was in 1814 that a modest beginning was made on the formal proposal of a Danish Botanist, Dr. Nathanial Wallich. He not only offered his own services as an honorary curator to serve this infant institution but also supplied the valuable duplicates from his own collection. The Museum was housed in the premises of the Asiatic Society till 1875.

Although some coins had been presented to the Asiatic Society in its early days, the first important numismatic acquisition was a set of valuable duplicates from the collection of Col, Mackenzie. This was presented by the then Government of Bengal after his death in 1821. What was there prior to this were a few stray gifts by individual members of the Society. An account of this small collection of the Society was published by H. H. Wilson in the Asiatic Researches for 1832. The collection consisted chiefly of some gold coins of the Kushāna rulers (Kaṇishka, Huvishka and Vāsudeva), coins of the later and Kidāra Kushāṇas and the Imperial Guptas (*viz.* Samudragupta, Chandragupta-II, Skandagupta and Prakāsāditya). The coin collection of the Society was being enlarged gradually by gifts and purchase. Apart from this, during the time of James Princep, the Assay Master of the Calcutta Mint, many more specimens must have been received by the Society, supplemented by gifts, purchase and Treasure Trove Finds presented by the Central and Provincial Governments of India. But in 1843, when Dr. Roar printed an imperfect list in the proceedings the most important section of the cabinet was a set of Roman coins found in India, the Bactrian, Indo-Scythian, Sassanian and Gupta coins togather numbering only one hundred and sixteen specimens . In the following year, 1844, all the intrinsically valuable coins were stolen, and only poor remnants were left. This had been described by Freeling in the Society's proceedings for 1857. The coin cabinet of the Soceity had been further enriched by the purchase of Stacy collection for Rs.4,000/- in 1859. The total number of coins in this collection was about 6,327 consisting of gold, silver and copper coins of Greek, Indo-Greek, Parthian, Scythian, Kushāna, Sassanian and different other varieties.

In view of the increasing number of the collection and inability of the Society to maintain this properly, necessity of a new building was felt keenly. To solve this problem, all the interested parties agreed to make a fresh proposal to the Government of India for establishment of a public museum at Calcutta. "The consequent negotiation resulted in the enactment of Act XVII of 1866, which provided for the establishment of a public museum at Calcutta to be called the Indian Museum" under the control of a body corporate of the Trustees. After the completion of the first block of the present building of the Indian Museum, the Society made over its entire collection excepting inscribed copper plates and coins to the Trustees of the Indian Museum, Calcutta, in 1875. Initially, all the departments were placed under the supervision of Dr. J. Anderson, the first Superintendent of this Museum, who arranged the archaeological objects in the galleries which were opened to the public in 1878. On completion of the work of setting up of the new galleries, he engaged himself in writing up of the Catalogue and Hand-book for archaeological materials, excepting coins, which was published in 1883 and remains upto this day the oldest and most important document of the Archaeological Section.

From the very inception of the present Indian Museum Building (1875) the antiquities including coins were being poured into it, as it is found from its earliest accession registers opened in 1876. An important collection was also purchased by the Trustees of the Indian Museum in about 1887 known as 'Revett Carnac Collection' from Col. J. H. Revett Carnack who formed this collection in Bihar and U. P. To this, constant sources of additions were Treasure Trove Finds, gifts from the private donors, and purchase, though contributions of mints was no less important in this respect. In fact, upto the year 1892, the Indian Museum collected quite a large number of objects from different sources, but due to retirement of Dr. Anderson in 1886, there was no able technical person in the staff to look after the collection properly. As a result, objects were much neglected.

In 1892 Purna Chandra Mukherjee was appointed as a temporary archaeologist. But he was mostly employed for collection and maintenance of sculptures. In the same year, C. J. Rodgers, the first Honorary Numismatist to the Government of India, was appointed to look after Numismatic collection of the Museum, and he began a catalogue of coins in the Indian Museum which was finally published by the Board of Trustees in 1893-94 in four parts.

A remarkable step was taken in 1903 when the Asiatic Society agreed to send their coin collection to the Indian Museum, as per changes and amendments laid down in Act-XXII of 1876. As per this Act, "The Coins belonging to the Asiatic Society of Bengal", although now deposited in the Indian Museum, are still the property of the Society, and the Act requires them to be kept and preserved in the Museum with such marks and numbers as may be necessary for their identification. This explains why such a large number among the coins catalogued in the four volumes, *viz.* I-II, III & IV published in 1906, 1907 and 1929 respec-tively bears the distinctive mark 'A. S. B.'

However, after the sanction of a liberal grant by the Government of India for publication of catalogues of coins in the Joint Cabinets, V. A. Smith was invited to take up the work of cataloguing in 1903. In 1904 the Trustees of the Indian Museum took over the coin collection of the Asiatic Society. Thus the earliest and richest coin cabinet of the Indian Museum, Calcutta, was formed. Initially, more than, 20,000 coins from the Joint Cabinet were offered to Smith, in which quite a large number was Muslim coins. It was not a very easy task for a single person to deal with such a big mass requiring knowledge and expertise in different types of scripts and languages. It was then unanimously decided to approach H. N. Wright I. C. S. (Rt) to take up the catalogue of Muslim coins.

Finally, it was decided that V. A. Smith was to take up the first volume of these catalogues. It would contain selected specimens of Non-Muslim series including some early East India Companies' issues from the Joint Cabinet. The remaining two volumes of Muslim coins were to be undertaken by H. N. Wright. Of these the second volume was devoted to the Pre-Mughal Muslim dynasties in two parts ; the first part contained the coins of the Sultans of Delhi from the twelfth century to the sixteenth century A.D., while the second part, those of the various successive States of the Delhi Sultans. The third volume was to be devoted entirely to the coins of the Mughal Emperors. The fourth volume was to contain the various Hindu and Muslim states which came into existence on the downfall of the Mughal Empire.

It is necessary to mention here that both the coin cabinets of the Asiatic Society and the Indian Museum had grown up in a haphazard fashion, starved in funds and usually administered by the officials untrained in numismatic science. As a result, it was suffering from several lacunae. Specially, these were lacking in adequate information relating to the objects, which is very much essential for study and researches. In fact, this inherent deficiencies have not been weeded out uptil now. Consequently, it was a pains-taking job for the earlier cataloguers to sort out useful specimens by segregating duplicate, defaced, and worthless pieces.

The catalogue of coins by V. A. Smith was published in 1906, and the coins catalogued were returned in 1907, and those catalogued by H. Nelson Wright came back in the next year. The entire coin collection was arranged by R. D. Banerjee in the newly built coin room in about 1911-12. The room was constructed as a Strong Room in which coins can be kept without using any extra safe.

The fourth volume was planned and sections alloted to different collaborators by H. Nelson Wright. But with the out-break of war publication of this volume was indefinitely postponed. Three of the contributors, C. J. Brown, J. R. Henderson and W. H. Valentine, however, produced the sections alloted to them, and as soon as the funds became available, Sir John Marshall took steps to publish it. As H. Nelson Wright found himself unable to undertake the general editorship, Marshall asked J. Allan of the British Museum to see it through the press. In 1928, when the volume was published, two of its contributors J. R. Handerson and W. H. Valentine already passed away, but the section of this book done by them will give an idea of the loss we have sustained.

Since the publication of catalogue volumes I, II and III by the Trustees of the Indian Museum in 1906 and 1907 respectively, the coin cabinet of this museum had been enriched by the acquisition of a large number of coins issued by the Hindu and Muslim rulers of ancient and medieval periods with their new types and varieties. Specially, after the transfer of administrative control of the Archaeological Section of the Indian Museum to the Director General of the Archaeological Survey of India in 1910, considerable numbers of coins came to find their way into the Indian Museum coin cabinet through Government, purchase, exchange, loan and Treasure Trove Finds. Quite a large number of these was from excavation and exploration. An important collection known as Pearse collection of coins was received by this Museum in 1929 through the Director General of Archaeology in India as loan. The total number of coins in this collection was about 4614, consisting of gold, silver and copper of different periods. It, therefore, became very much necessary to publish the supplementary volumes to the earlier published catalogues. This work had to be undertaken by the Archaeological Survey of India which, since 1910, had been the in-charge of the collection.

The first supplementary catalogue of the Non-Muslim series of coins was entrusted to Pandit B. B. Bidyabinod, Assistant Curator of the Archaeological Section of the Indian Museum, who prepared the catalogue following the same pattern followed by V. A. Smith with some additions of new types and varieties. The catalogue was published in 1923 without introduction and illustration. The first supplementary catalogues to Volumes II and III were entrusted to Maulavi Shamsuddin Ahmed, Senior Curator of the Archaeology Section of this Museum, who made a special study on Muslim Numismatics. He also prepared these catalogues following the line of H. N. Wright with a brief introduction and illustration. These two volumes written and published by S. Ahmed in 1939 included some new types and varieties with new mint names which did not find place in the original volumes.

The next catalogue is the Second supplementary one to the volume I. It was prepared by Dr. S. P. Basu, Curator, Archaeological Section, Indian Museum, in 1977. This volume contains some new specimens which were not represented in the earlier volumes prepared by V. A. Smith and B. B. Bidyabinod respectively.

Since 1986, the Indian Museum has undertaken the programmes of thorough re-organisation and re-modelling in all the sections in all respects. Under this programme the Board of Trustees of the Indian Musuem has decided to bring out new classified catalogues after dismantling all the existing arrangements. According to this scheme, dynasty-wise and period-wise classified catalogues have been alloted to the members of the staff of this museum as well as to the eminent numismatists of the country. It is expected that a few volumes will be published soon, and efforts are also being made to have all the sections of this cabinet catalogued. If the expectation is fulfilled, the new catalogues may be of great use to the students of numismatics.

The importance of the coin collection of the Indian Museum lies in the fact that the Indian Museum is the oldest museum of its kind in Asia having the richest and most outstanding collection of Indian coins of more than fifty thousand in number. There is also a significant arrangement of foreign coins of both early and late periods. It has already been mentioned that the coin collection in this Joint Cabinet has grown up in most haphazard fashion, but, in spite of its conspicuous deficiencies, the collection includes many valuable and interesting coins and adds a few new ones to this science. The entire collection represents almost all periods of Indian history from the period of the earliest punch marked coins upto the present days. Special mention may be made of the Greek, Indo-Greek, Roman, Persian, Sassanian, Gupta, a series of Byzantine coins, different series of Muslim coins, Indo-European series some rare European coins and also quite a large number of coins issued by the independent rulers of North Eastern part of India (*viz*., Tripura, Manipur, Jayantipur, Assam, Coach Behar, Nepal and Tibet).

This is, in short, the history of the coin collection of the Indian Museum, Calcutta, and it is a quite difficult task to trace the unbroken history of more than two hundred year old collection due to non-availability of systematic information. Therefore, the author may be excused for shortfall, if any, due to omission and commission.

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[2] *The Centenary Review of the Asiatic Society Fd. Rajendralall Mitra.*

[3] *Indian Museum*, 1814-1914. Published by the Board of Trustees, Indian Museum, Calcutta.

[4] *Journal of the Numismatic Society of India*, Vol. 23, 1961.

[5] *Museum Records.*

THE SO-CALLED "ĀBHICĀRIKA-MŪRTI" OF VIṢṆU

GOURISWAR BHATTACHARYA

IN the big exhibition of Indian sculptures held in Berlin, March-June, 1992, under the auspices of the Festival of India under the title, Palast der Götter (Palace of Gods) an image of Viṣṇu of greyish schist from Chaitanpur, Burdwan District of West Bengal was shown with several other sculptures, Buddhist, Hindu and Jaina. The Well-known Viṣṇu image is now kept in the Indian Museum, Calcutta and it measures 124 × 58 cm. (Fig. 1). A very ambitious catalogue written in German has come out in connection with the exhibition. Several scholars (three of them from the Museum of Indian Art, Berlin) are authors of the different objects of the exhibition. This Viṣṇu image has been described in the catalogue as a magician (Vishnu as Magiar), undoubtedly an unpleasant terminology to the worshippers of the deity. The reason for this nomenclature lies in the description: (English from the original German) His (*i.e.* Vishnu's) athletic, measured to the Indian beau ideal, this, ugly body, his scanty face, the bulging out eyes, the muscular arms, the thrifty, simple ornamentation and the outwardly swinging as if by hefty movement, exaggeratedly elongated ear-lobes, (and) not to the last the short loincloth give most probably the interpretation of the formidable aspect of god Viṣṇu (*ābhichārika*=the magician" (p. 214, item 147). The author even finds the image of Vidyādhara on top (the right one missing) contributing to the association of the cult image with the occult practices. This last remark is rather far fetched. The small flying figure of Vidyādhara is simply throwing flowers on Viṣṇu. The Vidyādharas are present invariably on the back-plate of different types of divinities. We are very unhappy with the identification of this image of Viṣṇu as a *Magician*. But the mistake lies not with the author of this item of the Berlin exhibition catalogue but with the late Jitendra Nath Banerjea. The author has taken the designation from Banerjea the reference has been made to Banerjea's article, 'An Abhicārika Viṣṇu Image', published in the *Journal of the Indian Society of Oriental Art*, Vol. VIII (1940), pp. 159-61. In his standard volume on the Hindu iconography Banerjea published this image and discuss it, see *The Development of Hindu Iconography*, Calcutta 1985, pp. 78, 399, 404 and Pl. XXVIII, (Fig. 2) : Abhicarikasthanakamurti (Indian Museum). On page 399 Banerjea writes, "One Abhicārikasthānakamūrti was recognised by me in the black chlorite Viṣṇu figure of the early mediaeval period originally found in Chaitanpur (Burdwan district, Bengal) and now in the collection of the Indian Museum, Calcutta." And on page 404 he writes in detail, "The unique Abhicārikasthānakamūrti of Viṣṇu found at Chaitanpur (Burdwan) already referred to by me, may now be described. The central deity is almost fully in the round, its head and shoulders are encircled by a halo and its right and left hands are placed on the heads of Gadādevī and Cakrapuruṣa; its front right and left hands hold a lotus-bud and a conch-shell. The figure is very sparely ornamented, a curious string of amulets round the neck replacing the usual *hāra* and *vanamālā* ; the loin cloth devoid of any artistic arrangement is treated in a very uncouth manner; the elongated and drawn face the big protruding eyes, the muscles and bones show prominently and the partially emaciated belly — all these features correspond to a great extent to the *Vaikhānasāgama* description of the Abhicārikasthānakamūrti of Viṣṇu. It is one of the most unique types so far discovered, and R. P. Chanda's description of it as an inferior specimen of the Gupta period requires comment and modification. The black basalt image is of c. 7th century A.D. (Pl. XXVIII, Fig. 2)". (Note 1: *J. I. S. O. A.*, Vol. VIII, pp. 159-61 and plate). The later art-historians on the Viṣṇu images followed Banerjea quite blindly in describing this image as an *Ābhicārika-mūrti* of Viṣṇu. Banerjea misunderstood Gopinath Rao who gives the *Vaikhānasāgama* description of the *Ābhicārika-mūrti* of Viṣṇu.

Rao (*Elements of Hindu Iconography*, Vol . I : Part I, Delhi , 1985, Second Reprint) describes (p. 84) the *Ābhicārakasthānakamūrti* of Viṣṇu in the following way, "This type of the images of Viṣṇu has either four or two arms, has to be dark complexion and possess a faded countenance. This image should be clothed in black, and is not to be surrounded by any divine beings or human votaries as in the previous cases."

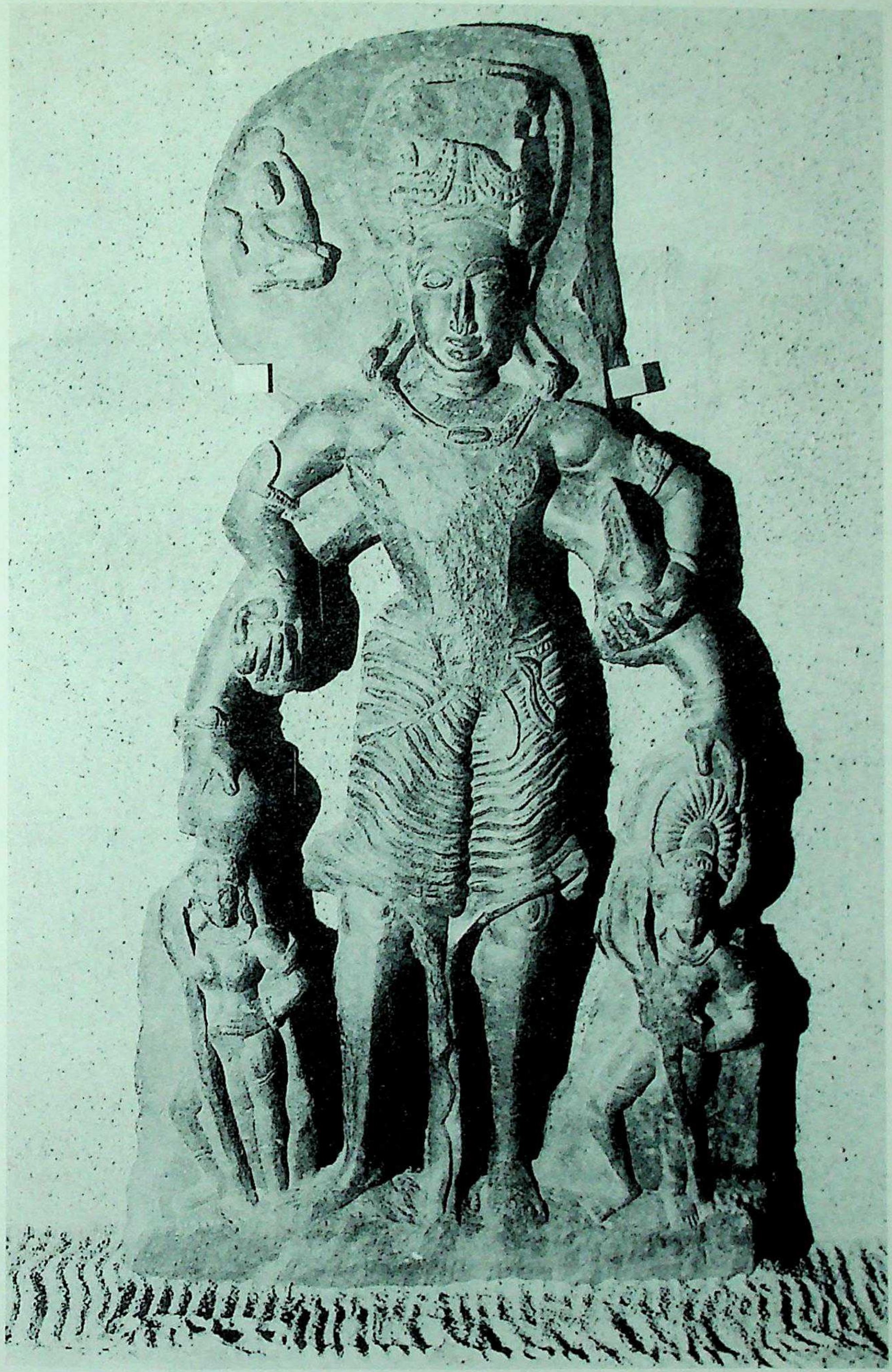
Rao does not illustrate any Ābhicārika form of Viṣṇu. It appears from the colour of complexion and of the clothing of Viṣṇu that either this was a typically painted South Indian image or an image to be shown in painting.

North India does not know any medieval or late medieval image of Viṣṇu without attending deities, *Āyudhapuruṣas*, consorts or votaries. Rao describes *Ābhicārikāsana-mūrti* and *Ābhicārikāśayana-mūrti* of Viṣṇu quite similar to the *Ābhicārikasthānaka-mūrti* of the deity. (pp. 90, 95-96). Rao's "faded countenance" of the deity (p.84) is perhaps explained in the form of Viṣṇu as *Ābhicārikāsana*, *viz*. "The Ābhichārikāsana-mūrti must have an ill-looking face suggestive of viciousness or *tāmasa-guṇa*". (p. 90).

The Chaitanpur Viṣṇu image appeared to Banerjea and to a many other art-historians, quite ugly and perhaps, therefore, he took this image to be of *tāmasa-guṇa* and therefore, as an *Ābhicārikasthānakamūrti*.

The problem is that most of the iconographists do not care for a thorough study of the origin and development of images of a particular deity from purely objective standpoint and therefore, make such fanciful identification of a deity.

We have to congratulate Enamul Haque who in his outstanding work, *The Iconography of the Hindu Sculpture of Bengal (up to c. 1250 A.D.)* published very recently (1992) from the National Museum of Bangladesh, Dhaka did not accept the identification of J. N. Banerjea of the Chaitanpur Viṣṇu image. It is worth quoting his remark in this connection, "The image from Chaitanpur (Burdwan) has been identified by J. N. Banerjea as the *Ābhicārikāsthanakamūrti* of Viṣṇu, described in the *Vaikhānasāgama*, for its 'extremely elongated face, the big protruding .



The so-called "Ābhichārika-Mūrti" of Viṣṇu.

eyes, the projecting muscles and bones and the partially emaciated belly' ! (*JISOA*, XIII, p. 73 ; VIII, pp. 159-161). The image in question shows a robust and healthy figure of the god and there is no sign of '*śuṣkavaktraṃ śuṣkāṅgam*' (skeletal face and skeletal limbs showing bone), the required characteristics of the *ābhicārikāsthanakamūrti*. (Ehi. I (2), App. C. p. 20). The protruding eyes are very common in the early phase. The attenuated waist has been wrongfully equated with an emaciated belly. Hence, seen alongside so many images of the early phase, we can no longer accept Banerjea's identification". Unfortunately the *List of Exhibits* prepared by L. A. Narain and printed in the English Brochure, "Palace of Gods : Classical Art of India Exhibition Berlin", contains the same mistake and a wrong dating of the image : "74. Abhicharika Vishnu, c. 12th century A.D., Chaitanpur, Burdwan, West Bengal, Basalt, 125 × 57 × 11 cm. Acc. No. 6523." This early image of Viṣṇu cannot be dated in the 12th century ! J. N. Banerjea and the writer of the Berlin Exhibition catalogue (in German) at least put the date correctly in the late 7th or early 8th century A.D.

We have also to congartulate the young American scholar, Frederick M. Asher who challenged this fanciful nomenclature of the Chaitanpur Viṣṇu image in his careful study of the early eastern Indian images, *viz*. Asher 1980: *The Art of Eastern India, 300-400*, p. 60, pl. 104, although his work is not an iconographical study of the images, but a chronological study of images on stylistic development. Asher comments, "J. N. Banerjea, who first brought the image to public attention, contended that the figure represents an almost unique *ābhicārika* Viṣṇu, that is a horrific form of the deity. However, there can be little doubt that the features that Banerjea presumed to be indicative of the figure's horrific nature are nothing more than the result of crude workmanship ; so during the seventh century a provincial character still marks some Bengali sculptures, much as we had seen in the sculptures attributed to the early Gupta period and also some of the contemporary sculptures of Benisāgar. As for the date, the image shows nothing marking it as a Gupta sculpture. Its elongated form may be related to that of the Khaḍga period images from Samataṭa discussed below as well as to that of a Viṣṇu torso from Jalabandha in Murśidābād District (Plate 242) that may be assigned to the eighth century."

In the catalogue of the Berlin Exhibition Enamul Haque's thesis and Asher's volume have been mentioned as references, but very unfortunately the writer of the item did not turn over the pages of these works.

To us this image of Viṣṇu is an important object of stylistic and iconographic interest. J. N. Banerjea was surprised not to find *vanamāla* on this image, but there are so many early medieval Viṣṇu images from Bihar-Bengal which have no *vanamālā*. For the loin cloth which according to Banerjea is, "devoid of any artistic arrangement is treated in a very uncouth manner", one should compare the loin cloth of the well-known Nārhaṭṭa Viṣṇu image. However, Banerjea did not know the existence of this image. In reality the Chaitanpur image is a further development of the Nārhaṭṭa (Bogra District) as well as of the Hāṅkrāil (Malda District) images. In the Nārhaṭṭa image the two *āyudhas gadā* and *cakra* have not yet been personified, but in the Chaitanpur image they are, because this is a later stage in the development of the Viṣṇu image. If the writer of the Berlin Exhibition catalogue has found the ear-lobes of the Chaitanpur image "exaggerately elongated" then one has to compare the ear-lobes of the Nārhaṭṭa image too. (c. 6th century according to Asher, Pl.37). The Nārhaṭṭa image is a very important and interesting deity for the development of the Viṣṇu image of Bengal.

We don't agree with the art-historians who describe the Chaitanpur image as "ugly", it is no doubt 'mascular like an athlete', and perhaps this was the intention of the sculptor to illustrate not an effiminate deity but the hero of the Mahābhārata war !

(In this short not we have avoided the distinction in nomenclature of the deity, Vāsudeva and Viṣṇu.)

A STUDY ON THE PREHISTORIC AND EARLY HISTORIC LITHIC CELTS OF THE DARJEELING HIMALAYAS

MANIBRATA BHATTACHARYA

Abstract

TYPO-TECHNOLOGICAL features of the ground and polished lithic tools collected from different places on the slopes of the Darjeeling Himalayas seem to belong to early historical period. From morphological typo-technological point of view there are two series of lithic celts of which one seems to second millennium B.C. and other to early Christian era. Besides, they suggest strong affinities with the neolithic cultures of China and South-East Asia. There are also a few common elements between the ground and polished celts of Darjeeling Himalayas and Bengal-Bihar region of Chhotanagpur plateau. Typo-technological features in general suggest strong resemblance with North-East India.

Introduction

The Darjeeling Himalayas is a sub-region of the Eastern Himalayas. It lies between 86^0 and 88^0 East. The soils are mainly alluvial at the foothills and silty loam in the hills. This sub-region can be physio-geographically divided into five altitudinal zones (Bose 1972 : 96-97) as follows :

(i) Up to 1000 m. : The landscape is conspicuous with the presence of deep gorges and sharp water partings ; topography is rough and covered with tropical forest where games of different sizes are abound. The climate is warm and humid *i.e.* warm tropical and very unsuitable for human habitation.

(ii) 1000-2500 m. : This is a zone of "optimum belt" and the landscape is disected with numerous well developed river terraces. The climate is cool and comfortable and up to 1200m. warm tropical condition prevails where it is cool for those places which are situated between 1200-2500m. On the slopes and terraces cultivation has been easily carried out which leads substantial growth of settlement. As this zone is inhabited by larger population, there are a fewer forest.

(iii) 2500-3000 m.: The landscape is rugged one with deep river gorges and mostly covered with coniferous forest. The climate is cold and only in some favourable places cultivation can be seen along with scattered homesteads.

(iv) 3000-4000m.: The landscape is very rugged and only the alpine medows facilitate seasonal grazing of the cattle; seminomads live here temporarily as the climate varies between cold to arctic.

(v) above 4000 m. : The rugged rocky terrain capped with snow and only in a few limited spots there are pastures during summer where temporary settlements can be traced for the only time of the visit of the seminomads. Above 5000 m. the terrain is very rugged one and appears empty regions of rocks, ice and glaciers.

Of the zones described above, the second one, the "optimum belt", lies between 1000 and 2500 m. is important from anthropological and archaeological point of view. For this is the belt where prehistoric tools, tribal population with their simple technology and favourable climatic condition for human settlements are found. This belt is exposed to the direct impact of heavy monsoon across the open gap between the Rajmahal and Shillong plateaus (Spate: 1954). Annual rainfall is very high (300-550 cm.). This high rainfall coupled with other geomorphological and biotic factors resulted in the growth of tropical forest and vegetations including several pecies of bamboos. The vegetation patterns vary according to the nature of elevation of the terrain.

Prehistoric antiquities

The prehistoric cultural antiquities found from the Darjeeling Himalayas are mainly ground and polished axes, adzes and occasionally chisels including a few large and flat celts with or without perforation. The raw materials used are mainly quartzite, phyllite, sandstone, shale and other locally available rocks. The collection also includes one jadeite implement which is rarely available locally. The tools are mostly polished but traces of chipping and pecking are also found. Sawing technique can also be traced in manufacturing the shouldered celts which are not very rare. The size of the tool assemblages shows a great range of variation : less than 3 cm. to more than 19 cm. in length and weight varies from less than 20 gm. to 290 gm.

Classification of tool assemblages on the basis of morphological and typotechnical features

The entire collection can be classified into nine groups which in their turn can be broadly divided into series A and series B.

Series A tools are largely characterised with the neolithic celt attributes of North-Eastern India and Eastern India and those of series B the attributes of Chinese neolithic of later Holocene period and early Christian era.

Series A

The artifacts belonging to this series are by no means heterógeneous and classified into five groups as follows :

Group I : Small and medium sized tools, average length, breadth and thickness varies 3-5 cm., 3-4 cm. and 1-1.6 cm. respectively ; forms are mainly triangular, subtriangular, trapezoidal and quadrangular or rectangular; butt-ends are mainly rounded or pointed, square or obliquely straight and elliptical. The ratio between axes and adzes is about 1:1. The group constitutes more than 80% of the total collection.

Group II : Medium sized tools, 7 cm. average length, mostly trapezoid or subtriangular adzes with lenticular or elliptical cross-sections, constitutes about 15% of the total collection.

Group III : Large and flat celts (mostly axes), 11 cm. average length, trapezoid with elliptical cross-section occur in limited number.

Group IV : Grounded and polished chisels—rarely occurred.

Group V : Shouldered celts—sawing technique, rarely occurred.

Series B

Tools of series B are rarely occur in Indian neolithic context. They show distinctivity in respect of raw material used, morphology and typo-technology of the tool kit. On the basis of their attributes they are further classified into four groups.

Group VI : Large and flat celts, highly developed prototype of metal celts, occurred only a few specimens.

Group VII : Perforated celts—only a few pieces, highly polished.

Group VIII : A few pieces—polished rubber stones.

Group IX : Highly polished ribbon-like chisel.

Typo-technology of the celts assemblages : On the basis of size Group I can be divided into two sub-groups—small and medium size.

(i) Small size : The size of the tools in average has a length and breadth of 3 cm. each and thickness around 1 cm; Shapes are triangular, sub-triangular and trapezoidal. Twenty percent of the total collection belongs to this variety. Celts are of two types—axes and adzes. The axes have two groups—triangular and sub-triangular and rectangular or square. Secondary grinding polishing can be traced at the cutting-edge which is slightly or markedly convexed thick butt with trapezoidal cross-section. The square or rectangular one has rectangular or trapezoidal cross-section. Adzes in most cases have a breadth which is greater than the length of the tool. Most common shapes are trapezoidal and sub-triangular, butt is thick rectangular or elliptical, retaining pecking marks, but grinding and polishing techniques are found in most cases. The cutting-edges are mostly straight or slightly convex. The cross-section is elliptical or rectangular.

(ii) Medium size : This group constitutes about 60% of the total collection, average length, breadth and thickness are 5 cm. and 1.6 cm. respectively. The ratio of the axes adzes belongs to this variety is 2:3. There are two distinct sub-varieties: *(a)* one is elongated and *(b)* the other is broader and slightly narrower than the broader and shorter celts. Frequency of the

elongated specimens is higher and the axes are relatively more in number. The adzes are more or less same for both the sub-varieties. The axes of elongated variety have rounded but with the marks of pecking and grinding at the thick butt-end. The cutting-edge although produced bifacially but one surface shows more bevelling than the opposite one. Sides are polished or ground, convex and bear marks of hafting. The cross-section is usually elliptical. The frequency of adzes is more than the axes. Some adzes are slightly irregular in shape, bear considerable marks of chipping and pecking ; grinding and polishing are also found. In all the cases the cutting-edge is polished and secondary polishing can also be traced. The cutting edges are either straight or slightly convex. The butt is pointed or rounded in some cases obliquely blunted with chipping. There is a strong tendency of planoconvex form in cross-section. Some elongated axes and adzes have trapezoidal or rectangular shape with chipping and pecking marks at the butt and in other cases, they are entirely ground and polished. The thick butt ends have a surface either roughly rectangular or elliptical. In some cases only chipping and pecking found at the sides which is devoid of traces of polishing. Frequency of axes is very low. The cross-sections are trapezoidal and elliptical, showing one surface flatter than the opposite one. The cutting-edges are straight or slightly convex.

The broader variety has two sub-divisions : thinner but rounded butt and thicker with squared off roughly straight butt. Average length and breadth is 5 cm. each and thickness 1.8 cm. The thinner and rounded butt adzes have more broad cutting-edge which is straight or slightly convex. There is a tendency of retaining chipping and pecking on the surfaces and at the sides ; polishing is largely restricted at the cutting-edge. A few specimens show only grinding. The cross-section is mainly elliptical with a flat under surface.

The thick, short and broad variety shows three forms : quadrangular or rectangular, trapezoidal and sub-triangular. The quadrangular or rectangular one is mostly axe, highly polished and in a few cases bevelling cutting-edge shows pecking and grinding at the sides. The cross-sections are elliptical, trapezoidal or rectangular. In most cases the trapezoidal form has been confined to the highly polished adzes. The cutting-edges are mostly straight and cross-sections are trapezoid. Another clustering of adzes have sub-triangular form with marks of chipping, pecking and grinding at the sides as well as on the surface. In some cases butt-end is squared off and bears marks of grinding and battering. Polished thick butt is also encountered. The cutting-edges are mostly straight and polished. The cross-sections are trapezoid or elliptical.

The tools of the Group II have the average length 7 cm. breadth 4.5 cm. and 1.8 cm. thickness. They have mostly bevelled surface and cutting-edges are prepared by unifacial polishing. The shapes vary between trapezoidal and sub-triangular having rounded or pointed butt with elliptical or lenticular cross-section. They are similar to those found from the Chotanagpur plateau and adjoining region. Only about 15% of the total collection fall in this group. The tools are of two types : axes and adzes. The predominant type is adze.

The tools of Group III are mostly axes and larger in size, above 10 cm. in length, trapezoidal or long oval in shape, ground and polished with elliptical or long oval cross-section with rounded butt. The thickness is with more or less uniform. The shouldered celts belong to the Group IV are symmetrical and rectangular in shape and the shoulders are produced by sawing technique. A few chisels which constitute Group V are mainly ground and highly polished at the cutting-edge. The chisels are smaller in size ; if size be the issue, they could be included in Group I.

The axes and adzes having elongated, broad, rectangular with trapezoidal tendency, very regular cross-section and symmetric profile are the distinctive characteristics of the tools belonging to the Group VI. The specimens are polished, cutting-edges are straight or curve. They are bilaterally symmetrical and have uniform thickness along the entire length of the tools. The distinctive feature of the tools belong to the Group VII is the presence of perforations. This group includes two main types *(i)* axe and *(ii)* chisel. The perforations are made near the butt-end. The skill employed in making perforations are considerably highly skillful. They were made in such a manner that the holes are situated symmetrically and medially. The tools were prepared in such a way that a uniform thickness could be maintained all along the entire length and breadth of the tools. The axes are broad, flat and elongated : the length is above 12 cm., shape is rectangular with slight trapezoidal tendency and bilaterally symmetrical having a thickness of 1.5 cm. with rectangular cross-sections. There are two perforations very symmetrically bored from both the surfaces. The chisel is shorter, narrower and slightly thinner than the axes. It is like a rectangular piece with perfect geometrical shape having high polish at the cutting-edge. A few pieces of black, hard cylindrical polished pieces belong to Group VIII might be used as rubber for polishing the celts.

In fact ground and polished stone industries of the Darjeeling Himalayas typologically comprises : (1) small stone celts, (2) the celts with rounded butt lenticular or elliptical cross-section and trapezoidal shape, (3) the celts similar to type 2 with pointed butt, (4) quadrangular and (5) rectangular axes and adzes, (6) shouldered celts, and (7) perforated large flat celts.

Discussion

The Himalayan lithic industries have strong affinities on the one hand with the Chinese neolithic tradition, Lungshanoid cultures, and on the other hand with those of North-Eastern India. There are some axes with rounded butt, although rare, can be compared with the neolithic tradtion of the Bengal-Bihar region. The presence of pointed butt-end shows strong affinities with South India. The tiny flat and thin body triangular polished celts have strong resemblance with the South Chinese neolithic industries. Perforated celts along with other perforated knives have been noticed in many places of Chinese neolithic cultures *e.g.* Pie-yin-yang-ying phase of Lungshanoid culture (Chang 1977:164-165). The flat large bar celts with bilaterally elongated rectangular one having rectangular cross-section shows strong techno-morphological resemblance with Ch'u-shia-ling culture of Hupei (Chang 1977:165-167).

Similar perforated artifacts have also been noticed from Lung-shan culture of Chekiang (Chang 1977 : 180--182). Similar tool types, perforators along with shouldered celts, have also been noticed in the Szechwan, Kweichon and Tibet and also from Yunnan (Chang 1977 : 203-204). In this context it seems important to mention the prehistoric finds reported by Sharma (1981) from Sikkim. His finds mainly comprise harvesters, neolithic celts including artifacts with single and double perforations from a number of localities in Dangu area in the North Sikkim. Besides, the spatial context of occurrence of tools and the presence of traditional trade routes through Tibet are also very indicative in this connection. Furthermore, the tribes speaking Sino-Tibetan family of language of the region and adjoining places is suggestive one towards this direction. The tool made on jadeite also has strong Chinese affinities. The shouldered celts, quadrangular axes, adzes and chisels show very close affinities with the neolithic cultures of North-East India. According to Sharma (1974) such tools of North-East India bear a strong affinities with South-East Asian traditions.

As the ground and polished celts occur as surface finds from different places, it is very difficult to place them in proper geo-cronological context. Other means are also lacking for dating them except typo-technological features. On the basis of typo-technological features the celts of Group I and II can be considered earlier than the broad flat elongated rectangular shaped celts of Group VI and VII. In fact, it may be said that chipped and ground ones having traces of polish at the cutting end seems to be earliest one and belong to earlier neolithic phase. The highly polished flat and thin celts are comparatively later and the large flat rectangular celts with perforated hole, seem to be contemporary to the early metal age.

The Darjeeling Himalayan ground and polished stone celts assemblages show persistence of Chinese and South-East Asian neolithic traditions of different stages and ages. They also show Eastern and South Indian neolithic characteristics. The most important point with respect to the Darjeeling Himalayan lithic assemblages is that they show in many respects similarities in typo-technological and morphological features with that of North-East Indian one. In respect of dating Sharma has suggested 5000 to 2000 B.C. encompassing different stages of the Neolithic Cultures of North-East India. By à little modification of his scheme of dating and considering the presence of Lungshanoid Cultural traits, perforation technique and related characteristics, a tentative date may be assigned to the Darjeeling Himalayan assemblages. Series A being earlier one belong to the neolithic stage of the middle and later stage of North-East Indian neolithic and it seems to be not earlier than later half of the third millennium B.C. For series B they seem to belong to earlier Christian era.

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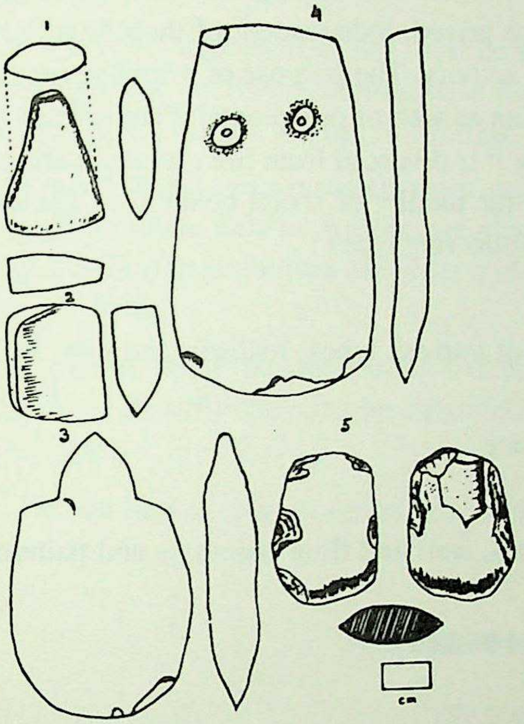
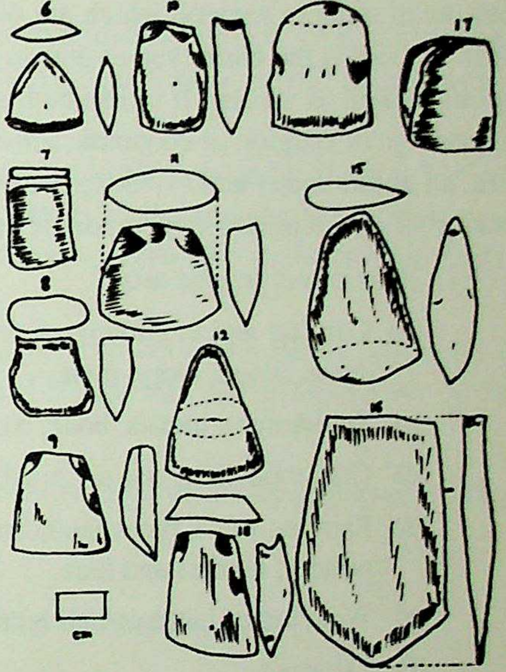
PLATE

Description of ground and polished stone tools of the Darjeeling Himalayas :





1. Medium sized, subtriangular axe;
2. Medium sized, trapezoidal axe ;
3. Large flat highly polished tanged axe proto type of moto ;
4. Highly polished perforated axe (proto type of metal) ;
5. Medium sized rounded butt adze ;
6. Small sized triangular axes ;
7. Small sized rectangular adze ;
8. Small sized rectangular axe ;
9. Small sized trapezoidal adze ;
10. Small sized rectangular adze ;
11. Small but broad sized subtriangular adze with lenticular cross-section ;
12. Medium sized rounded butt axe with trapezoidal cross-section;
13. Medium sized rectangular adze ;
14. Medium sized trapezoidal celt ;
15. Medium sized rounded butt adze ;
16. Large flat highly polished axe (proto type of metal) ;
17. Small sized rectangular adze.

TEXTILE IN TRIBAL INDIA

(With reference to the Collections of the Indian Museum)

A. K. CHATTERJEE

TEXTILE is an art object in the life of the advanced caste people, but not exactly so in the life of the tribal people. Art in primitive society is not entirely a quality of things and objects as in modern society, which are otherwise prized, independent of their artistic value. Artistic activity is the basic type of human social activity. The purpose of primitive art is both religious as well as secular. It is also both utilitarian as well as ornamental. Primitive art is not an appendage of religion or economic activity, nor it is divorced from life ; it is part and parcel of life, an autonomous activity integrated within the totality of social behaviour. The artistic activities of our primitive contemporaries are of following types :

(1) Plastic and graphic arts :
   (a) Carving and engraving of designs of various types, realistic and geometric, in stone, wood, ivory, metals.
   (b) Sculpture in metals, bone, wood, stone.
   (c) Clay modelling and toy making.
   (d) Painting of all types including murals, wall and floor paintings and painting on pottery, textiles and hide.
   (e) Weaving of patterns into textiles and basketry.
   (f) Tatooing.
   (g) Personal ornamentation including dress and hair styles
(2) Oral literature includes folk tales, folk songs, proverbs myths and common sayings.
(3) Music and dance include various types of instrumental and vocal music and also various types of dances and dance dramas.

Textiles, weaving of patterns into textiles come under plastic and graphic arts.

Much attention was not given to study the artistic afforts of Indian tribes in the pre-independence age, but in the post-independence period the ethnographers and scholars having an inclination towards the holistic study of tribal art as well as the culture. But in South America and in Africa similar type of study *i.e.* study of tribal art has been conducted for a long time back. In our country ethnographers and scholars failed to notice the artistic talents possessed by the tribes and even they came into conclusion that the tribal people are 'ignorant of art and manufactures'.

This type of baseless idea was probably based on superficial field survey and haphazard and untrained thinkings. Those scholars could not find the artistic talents of the tribes because they could not differentiate the forms of traditional art and its media of expression and moreover they failed to identify the functional significance and its value system.

Prior to V. Elwin there are casual references about tribal art or any ethnographical accounts. After Elwin there was a vaccum in the study of tribal art in our country. During the late sixties contribution by NAAO and in the early seventies by Dr. Kapper extened the horizon of study of tribal art.

A few other important names must be added at this juncture *i.e.* Dr. A. K. Das and Mrs. Nilima Roy, both of them contributed a lot in this field publishing their research work on Tribal Art and Craft and Manipuri Textiles.

In spite of all these research work more intensive analytical study of the tribal art of India specially in the field of graphic and plastic art putting much emphasis on textiles is yet to be made. These responsibilities are lying with the Anthropologists who are working in different museums in India.

The tribal art forms are varied and diversed. So it is very difficult to categorise and classify them. Broadly they can be classified into two groups *viz.* a) Performing art b) Non-performing art.

The non performing art forms can be categorised in an evolutionary sequence which are as follows:

NON PERFORMING ART FORMS

(1) *Non-bodic*
    Personal adornment (Tatooing, Painting on face to body etc.)

(2) *Technomorphic*
    (a) Textile
    (b) Basketry
    (c) Mat work

(3) *Graphic*
    (a) Wall painting
    (b) Scroll painting
    (c) Painting on wooden objects
    (d) Painting on weapons

(4) *Plastic*
    (a) Two dimensional
        (i) Surface burning
        (ii) Paker work
        (iii) Relief work
        (iv) Engravings
    (b) Three dimensional
        (i) Wood carving
        (ii) Masks
        (iii) Terracotta
        (iv) Metal crafts
        (v) Ornaments

Textile comes under the technomorphic forms of non-performing art. So textile of the tribal people should be considered as tribal art.

Tribal art objects like textiles which have been taken into consideration as a people art and these are more or less institutional. Dr. Elwin was of the opinion that various traditional Institutions are responsible for stimulation of the artistic pursuits. The sponsoring Institution of the tribal art vary from area to area with the motivational change. The head hunting Institution of the Naga tribes of the N. E. India has been the sole inspiration of the tribal artists in the past. The bachelor's dormitory among the tribes such as Konyak, Phom, Muria, Maria, Juang, Oran has been playing a vital role in the artistic creativity for a long time. Various religious Institutions and the Institution of totemism among the tribes of M. P. & Gujarat has been motivating factor for the wood and stone carving. The Practice of human sacrifice among the Kondh of Orissa resulted in production of objects of art. The monastic Institution of the Buddhist Tribes of Sikkim, Bhutan and Arunachal Pradesh, Nagaland and Manipur *i.e.* N. E. Indian Tribes played an important role in production of art objects. The Chiefs of this region are well-known for their patronage in the field of tribal art and crafts. The intimate relationship of the tribal art with marriage ceremony, Puberty rituals, rites connected with child birth etc. may also be noticed.

The tribal art like textiles etc. may be considered as a codified system composed of signs and symbols, and this is the traditional language of communication. We must, therefore, be wellversed with the socio-religious attitudes and values of the tribal society to understand it.

Some of the tribal art are profane but a large number are the existing evidences of religious norms and world view. The significance of God and spirits and the malevolent diety are all evident in the tribal art.

Tribal art object like textile can not be identified with the individual artist. One can locate the region from which the art has come, from the ethnic group who created it or the group of people from whom it was made. To some extent one can also tell by the style whether the artist was a Naga, Manipuri, Muria, Nicobarese, Kondh, Gadhaba or Bonda

Description of Textiles (Dress) of the Tribal people of (N & NE/Central and Southern) India :

Bodokachari is the main tribal group in Assam. They are known as Meches in West Bengal. The northern branch of this group is known as Koch. The other brances are Dimasa Kachari, Rabha, Hajong, Garo, Sauing etc. Besides Kachari, the other groups are Mikir, Kuki etc. The tradition and history of the Bodo people can be traced to early Mongoloid or Kirat movements. Saigal stated that the Kirat entered India through the Brahmaputra valley about three thousand years ago. The Kirat as geographical and ethnic nation includes the Himalayan tribes, the Bodos, the Nagas, the Kukis, the Khasis and the earlier tribes who have now become absorbed in the plains population of Northern and North East India. The Bodos are the most important of the Kirat tribes and constitute the basic present day population of these areas. They first settled in the Brahamaputra valley from where they gradually spread over.

They believe in supreme being and other malevolent spirits. Their language and dialect belongs to Sino Tribetan family (Saigal'78). All the above mentioned tribes know the art of weaving particularly 'eri' (cloth weaving).

The Khasis and Garos of Meghalaya know the art of weaving. Manipuris and most of the adjoining tribal people are generally good weavers.

In Tripura: Tripuri, Riang and Jamatia tribal people know the art of weaving and dyeing.

In Mizoram: Mizos know the art of weaving and the art of dyeing. They also learnt the cotton cultivation in the past and cotton was used for their dresses.

Hill Miri, Mikirs, Mishmis of Arunachal Pradesh know the art of weaving also.

In Orissa the Kondh tribes are large in number. They also use the simple type of garments (*i.e.* textile) made of coarse cotton and of different colours such as :

'DABEDI' : A piece of coarse cotton cloth off-white in colour with red stripes and designed black and red borders, used by the female.

'DEPEDI' : Off-white coarse cotton cloth with red and black checks used by the female of the Kondh tribe for covering the lower part of the body.

'GAJI' : Marriage cloth for male. Coarse large cotton cloth with stripes of blue, red and yellow. Prepared in their simple type of loom in indigenous method. Used by the bride-groom at the time of marriage.

'DIPEDI' : Marriage cotton cloth. A thick piece of coarse coloured cotton cloth used by the bride at her marriage. Maroon coloured stripes executed against sky blue background, other side is designed with broad yellow stripes.

Mundari speaking Gadhaba tribes of Orissa are famous for their bark cloth known as 'KERENG' and Bondas of Bonda Hills of Koraput district Orissa, prepare a coarse bark - garment known as 'RISANG'

'KERENG': It is large in size, made of Kereng bark threads, thick coarse, decorated by red and blue stripes at regular intervals weaven by the ladies in their own indigenous method using their simple type of loom. It is traditional bark cloth and used at the time of festival.

'RISANG' : Bonda tribes know the art of weaving. They weave coarse, thick decorated bark cloth, very small in length and breadth called 'Risang'.

Rabha tribes of West Bengal use the following garments :—

'LUFUNE' : Skirt cloth ; unsewn brown female garment when put on, appears in the form of a skirt. Short piece of cloth with highly decorated lower portion against black background.

'KAMRANK' : Breast band. Coarse cotton cloth decorated and designed with brown lines and yellowish thread.

Madhya Pradesh

The tribals of Bastar (M.P.) live in a world of endless varieties of rhythm, colour and form and all their social, religious, economic and cultural activities find expression in their crafts and personal-adornment.

Ornamentation and personal adornment play a vital role in their personal life, and wearing of various types of necklaces, bangles etc. Among the Bisonhorn Maria 'head dress' is must for men during their dance.

Bay Island

The Andamans and Nicobars have been inhabited by two entirely differents races. The Andamanese belong to Negrito race and the Necobarese on the other hand resembles the races of Indo-China and Malaya.

Hibiscus fibre is used mainly for making articles of turtle and big fish. So the ornaments of Libisens fibres are worned at the time of eating of such hunt. The Andamanese also believe that the wearing of bones of animals they hunted too has such influence. Human skull and mandible, belonging to the recently dead relatives are worn as a mark of affection and respect. Details of their dress materials are presented below :—

The Great Andamanese

1. (i) "CHIRBELE" Rope girdle, Hibiscus fibre is twisted into single strand. The yellow skin of the Dendrobium rounded spirally so that it is covered entirely and this strand is twisted into a two-ply cord.

   (ii) A net of hibiscus fibre interwoven with the Dendrobium skin is made into a tubular net of 3 cms. in diametre and fitted with some bark. It is tied around the waist.

These rope girdles are used by men in ceremonial occasions.

2. *'TOTO'* -leaf girdle : To a strap of Pandanus leaf, fibre of Pandanus leaf are attached like a screen for covering the genital organs of a wearer. The ends are tied together and on the two sides 5 to 6 shells are suspended by thin stripes of Pandanus leaf so as the shells of dangle on the sides of the thighs and make a jingling while walking or dancing. It is worn by females.

3. 'TOUCHOH' : A strap of Pandanus leaf of about 3 cms. in breadth, numbers of shells are suspended serially by strings. This is tied by both sexes below their knees or arms while dancing .

The Onge (Little Andaman)

1. 'CHENDALU' : The closed ends of the dentalium shells are bitten off with the teeth and the shells, which thus form cylindrical leads, are strung on to a piece of thread. These strings of shells are tied around the waist of women and are worn as necklaces.

2. 'KOLE' Ornamental Cord: Long and thin cane strip with a very fine yellow skin of Dendrobium is placed and wrapped with a red coloured thread. This yellow and red stripes are worn around the waist. Sometimes a good number of stripes are also worn around waist like a belt. This type of belt is as good as dress used by both the sexes.

3. A 'Tassel' of fibre made from young unopened Palm leave is worn by women for covering their genitals.

The Nicobarese

The Nicobarese of Nicobar Island are horticulturists. The dresses of the Nicobarese consist of a long piece of cotton loin cloth called 'KISAT' and a turban or a cap. The loin cloth was tied around the waist with one long end hanging behind in a manner resumbling a tail. White Head (1924) opined that the Nicobarese were not only a naked people but also had a tail.

The women were wearing fringe like skirt, called 'THINONG' and blouses of grass or split coconut of Pandanus leaf. The skirts were of three types, and worn one over the other on occassions like dancing. The inner skirt was six inches long and others a foot of each. The leaf skirts and blouses were confined to Chowra and Teressa Islands. In some islands among the 'Shempen' bark cloth was used for the purpose of clothing. Now the women have largely taken to Burmese dress of 'Lungi' and blouses. In some Islands where the contact with the outside world are less their old women and some Youngers, women while working, usually go bare on the upper portion of their bodies.

Textile

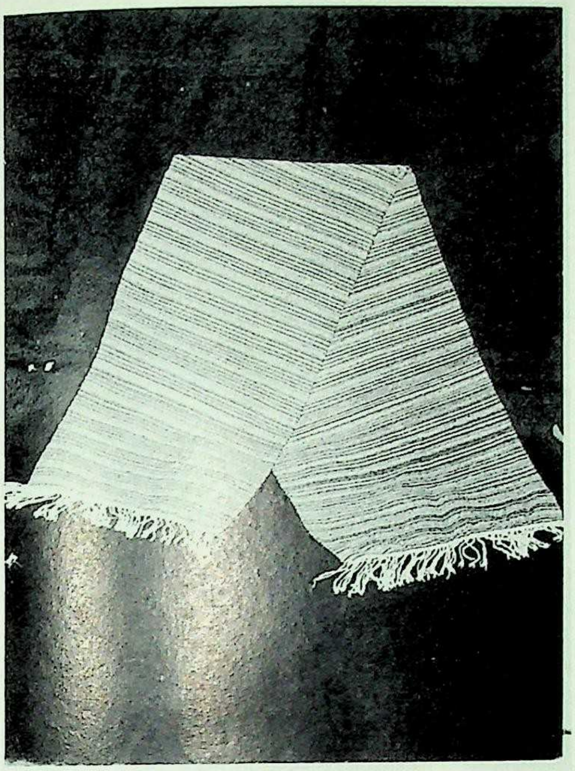
In North East India, spinning, dyeing and weaving are exclusively controlled by the female folk. In Arunachal Pradesh previously the textile weaving is comparatively limited among the Adi, Mishmis, Apatani and the Buddhist tribes. Textile patterns of these tribes are invariably geometric. Most popular motifs are diamond, zig-zagline and angular patterns. The floral and geomorphic patterns are more or less in geometric form. Even now simple and straight lines, stripes and bands are the most common designs. Contrast and combination of colours are often made. They generally use vegetable dyes. The common colours are black, yellow, dark blue, green scarlet and meddor. Vegetable dye is obtained from the wood, bark, leaves, shoots, wild flowers and fruits of certain plants. The hair of goat, dog and even monkey is sometimes used by the remoter tribes. So far as design is concerned Adis and Apatanis concentrate on straight lines. The Adis' bands whether horizontal or vertical, are often enhanced by a sort of hatching-rows of colour dots, single lines of different colours. Different shades are achieved by mixing threads of black with other colours. The Apatani uses broad band alternative with narrow lines in their cloth. Another style of cloth is white with borders of blue mixed with red lines and a few vertical stripes of red, green and white. Mishmi weaving is much more elaborate, though the straight line and band are frequent. The zig-zag pattern is only found in the Wanchoo bag. Herring designs are found in the shawl of Apatani priest and in the Wanchoo and Mishmi coats. Lozenge and diamond patterns are found among the Idu Mishmi, they are woven on shawls, skirts, coats and bags. The Monpas are expert weavers. Monpa women weave in wool, cotton and bark fibre. They extract fibre from the Fheanivea and other plants. They have their own dyes which give them black and various shades of red and yellow. Besides textile weaving the Monpa women weave colourful carpets of dragon design on them.

In Nagaland cotton is plentifully grown in the villages on the lower hill sides. The cotton is seeded by a small wooden machine which is manufactured by the Kocha Nagas. The spindle which spins out the seeded cotton is called "themwu" and the loom is a simple kind of tension loom. The Nagas use dark blue, red and rarely yellow dye. The vegetable dye is obtained from leaves, shoot, bark of certain trees. The blue dye is used by the Nagas varies from light blue to balck. 'The red dye is less used than the dark blue. One of the reasons is that red colour being the colour of blood, a young woman using this colour in dye operation is believed to die or lose her head in a raid'. Yellow dye is used only by a few tribes.

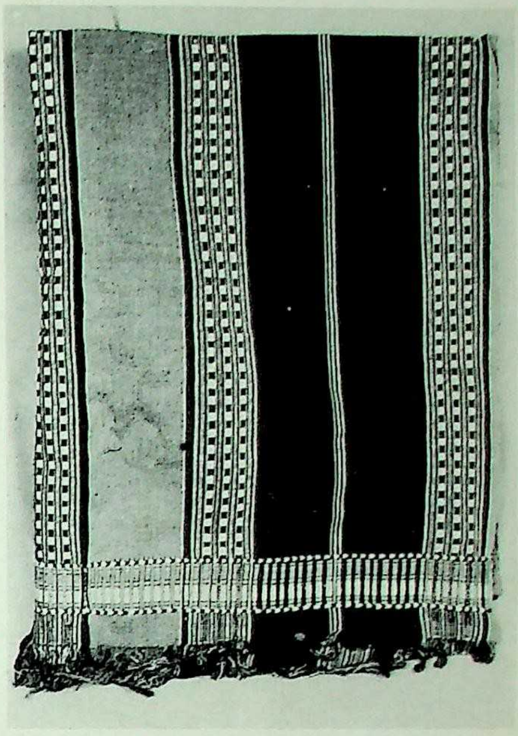
Naga women are very expert in getting the exact shades they prefer. The designs vary from a formal arrangement of lines to elaborate pattern of diamond and lozenge shapes. Simple and straight forward lines, striped, squares and bands are the most traditional designs. On the skirt and shawls the stripes and bands are usually horizontal. In recent years familiar objects are often added to their original designs. Different types of the Nagas shawl range from very simple white cloth to the elaborately designed warrior or rich man's shawls. One of the common features of Naga shawl is that three pieces are woven separately and stiched together more or less the same pattern. In case of skirt for children and women the stripes are reduced to two only.

In Meghalaya the Garos weave their own cloth. Garo women manufacture mainly 'Dakmandas.' The Dakmandas (2 meters × 1 meter) wrapper worn by women folk beautifully decorated with their own indigenous design, the colour schemes and various types of designs like flowers, butterflies etc., are remarkable. Both the borders of the 'Dakmandas' are decorated with three equal rows of diamond designs spreading to a width of about 1/3 meter. Apart from 'Dakmandas' they manufacture some other fabrics for their daily use. 'Amfak', a blanket made of bark, is still popular in the interior part of the Garo hill, strips of barks of pharkam tree are taken out, these are pounded to make them stretched. These are then put in the sun. The bark sheets are then stitched to be used as blanket or as mattress. The Khasis and Jaintia tribes had also certain original designs in handloom fabrics. But weaving in Khasi and Jaintia hills now-a-days practically negligible.

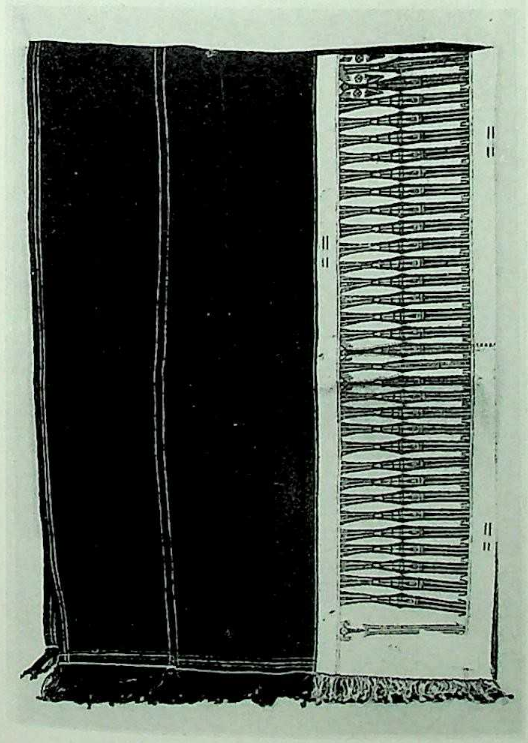
A form of textile found mainly in Khasi hills is derived from pineapple fibre. These fibres are generally used for making bags. The Mikir women folk are expert in weaving. The cotton generally grows in their field. They also know the art of manufacturing eri silk and weave it into coarse fabrics or blanket used in cold weather. They dye their thread with indigo. They also know the use of red dye. In Assam the Kacharis know the culture of silk worm, and manufacture of eri cloth. The loom used for weaving the eri silk is of simple construction and the



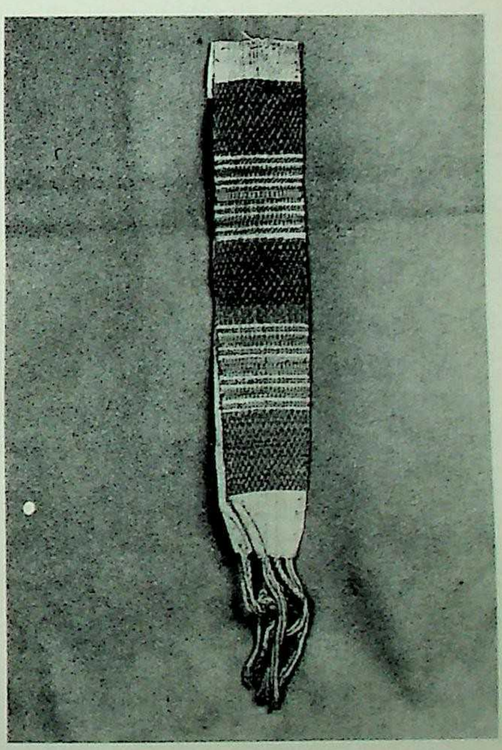
Bonda Dress



Naga Dress



Naga Dress



Naga Dress

villagers themselves make it. The eri cloth is woven long stripes about 2 yards wide. This fabric cloth is generally used in the cold seasons being soft and warm as well as remarkably strong and durable. They make geometric designs sometimes floral and faunal designs used by the Kachari women. The Manipuris are generally good weavers. The quality of the Manipuri cloth is still good. They generally use looms of loin type. They dye their clothes and yarns with the help of some plants and some varieties of earth. Many of the plants are cultivated as dye crops. A kind of earth found on a hill named 'Kaina' and it yielded a beautiful yellow colour. They are also expert in embroidery work. The borders of the skirts are generally embroidered with silk. The designs of embroidery are flowers, birds, animals etc. Indigenous textile pattern is invariably geometric in form.

Spinning

Naga clothes were originally made of entirely local materials. Cotton on small scale is grown in many areas, Lothas, Rengmas and Aos were great cotton growers and used to sell to the neighbouring tribes. In recent years mill-made yarn is readily available in the market at cheaper price, so the production of cotton and the indigenous spinning is fast loosing in the face of market competition. Weaving is becoming more popular than before and the new designs in textile have become more varied of late.

Spinning like dying and weaving is performed by women and every Naga woman is supposed to weave cloths of her family. The process of spinning is primitive and a few simple tools are used in the whole process. The cotton is cleaned of its seeds by having rolled on a flat stone with a stock used like rolling pin. The work of seed cleaning is generally done by the old women who being no longer able to go to field.

Dyeing

The dyeing process takes place after the yarn is transferred into skoins. The indigenous colours in recent years are replaced by chemical dyes. Further the easy availability of coloured thread in the market does not encourage the necessity of producing the old indigenous colours. The Nagas use dark, blue, red and yellow dye, the whole process is carried out by women but which is also taboo among some tribes to handle any dye during pregnancy as they think the foetus be effected by the colour. Blue dye is obtained from the leaves of the *Strobilanthes flaceidifolins*. This is a universal Naga dye and the plant is grown in the gardens of the villages. Blue dying is used in autumn and early winter. The Angamies prepare red dye from the root of a local creeper 'Isenythi'. Yellow dye is made from the wood of a plant called 'athuo'. Use of the dye of any colour is restricted before harvest as they feel that the process is in some way detrimental to crops.

Weaving

Unlike other parts of India, where much of spinning and weaving is in the hands of male, but in Nagaland this work is the exclusive monopoly of women.

Conclusion

Now due to contact situation and assimilation of culture the traditional customs and beliefs of the tribal people are in changing situation, eventually the old art may also be subjected to continuous transformation and decay. Traditional textile, dress and head gear etc. have been loosing their traditional meaning to the new generations. Tribal art objects like textiles; their designs and patterns and values that belong to a time and pattern of culture, that is given away to the new values and orders. The impact of urbanization and industrialization on the tribal textile and also on other tribal art objects is quite evident in North, North-East and Central India. The art is changing incorporating many new ideas, style and form. A time is not far when their artistic tradition will disappear completely, without leaving any trace. At this stage speedy scientific documentation of these dying cultural heritage is very urgent and revival and retrieval of these dying tribal art, like tribal textile etc. must be considered as national problem.

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ON THE ZOOLOGICAL EXHIBITS IN THE INDIAN MUSEUM, CALCUTTA

MANOMAY GHOSH

Introduction

THE Zoological collection of the Indian Museum has a rich heritage and a prestigious background, having been started in early nineteenth century. Its germs were laid with the foundation of the Asiatic Society of Bengal in 1784 by Sir William Jones. The Society was the harbinger of the study of Natural History and collection of diverse fauna from different parts of the country as well as some from abroad. These collections and their catalogues formed the base or nucleus of the later Natural History branch of the Indian Museum which was founded in 1814. Sir William Jones personally was not in favour of the collection of animals from their natural habitat, only to be killed and preserved for the purpose of study. However, soon after his death (1794), the scholar-members of the Society felt the need of collection, preservation, description and study of both fauna and flora. Lord Wellesely was enthusiastic on the study of fauna and he also encouraged the naturalists to carry on researches on the aspect. To promote further scope, he established one institution at Fort William for Natural History and one menagerie at Barrakpur in 1800, where live animals were kept for observation. This institution, under the care of Dr. Francis Buchanan, however, was short-lived and degenerated, by 1805, for want of proper management. Ultimately the idea of establishing a full-fledged museum came from Dr. N. Wallich, the then Superintendent of the Botanical Gardens. He was a keen naturalist and collected valuable specimens of mammals, birds and insects. A number of them were studied and described by Major-General Hardwicke around 1815. Dr. Wallich persuaded the Society and Government to build a meseum in1814, that would handle all sorts of articles related to history, arts and the sciences, and he donated the valuable duplicate of specimens collected prior to 1814 from his personal repository. Thus the journey of Indian Museum and its Natural History section began 175 years ago ! Incorporation of materials through collection, donation and purchase enriched the zoological collection gradually and with the transfer of Society's entire materials, in 1865, the collection was elevated to Asia's largest faunal collection.

The zoological collection of the Museum was greatly enhanced and improved during the time of Edward Blyth, who was specially selected and sent from England to act as the Curator of the section in 1841. The importance of the collection was emphasised by the publication of valuable catalogues : Of the mammals and birds by E. Blyth; Of the reptiles and freshwater shells by W. Theobald and Of fossils by D. H. Falconer and H. Walker. Important contributors towards the study during the 19th Century were made: In mammals, birds, reptiles, and amphibia by Hodgson, Falconer, Cautley, Baker, Durand, Blyth, Tickell, Blanford, Theobald, Godwin-

Austen, Stolicjka, Anderson and Lydekker; In fishes by McLelland, Blyth, Carton and Dey ; In invertabrate groups by Benson and Hunter, Theobald, Blanford, Godwin-Austen, Nevill, Wood-Mason, Marshall and Niceville. A number of the exhibits were obtained from such famous expeditions conducted by the Asiatic Society of Bengal: First (1868) and Second (1875), Expeditions to Unnan; the Persian Boundary Commission (1870-72); First (1872) and Second (1873-74) Yarkand Mission and the Dafla Expedition (1874-75).

To these were added the collections made by the Indian Museum itself in different years and by the Zooloical Survey of India since its inception on 1st July, 1916. Some of the valuable specimens which were incorporated later by the Survey were obtained from such famous expeditions: "Daily Mail" Himalayan Expedition to Nepal in 1954; Indo-German Zoological Expedition in 1955-57; Zoological Survey of India and U. S. Fish and Wild Life Service Expedition for the collection of game birds in 1959; Indian Cho-Oyu Expedition to Nepal in 1958; Joint Expedition organised by Harvard and Yale Universities in collaboration with Zoological Survey of India for the collection of insects in 1958; Indo-Swiss Entomological Expedition in 1958-61; International Indian Ocean Expedition for marine collection in collaboration with Soviet Russia in 1962; International Indian Ocean Expedition, in a joint venture on board INS 'KISTNA' in 1962-64; Zoological Survey of India and California Academy of Sciences Expedition in 1961-62 and from a few more other Surveys. Important contributors to the study and collection were : M. L. Roonwal, K. K. Tiwari, B. Biswas, H. Khajuria, B. K. Tikader, A. K. Mukherjee, A. K. Dutta, B. S. Lamba, A. G. K. Menon, K. C. Jayaram, A. Daniel and many others.

Besides the above, a great number of interesting specimens were received from the Calcutta Zoological Garden and from private contributors.

The Galleries

Presently the Museum houses five zoological galleries, all on 1st floor: Two for mammals (large and small), one for birds, reptile and amphibias together, one for the fishes and one for the insects (re-established). Two decades ago, there was an invertebrate gallery on the ground floor, which had very precious exhibits of marine organisms like the shells, corals, sea-animones, starfishes, octopuses etc. Due to some exigency, the gallery had to be dismantled and the collections kept in the Survey's laboratory.

The Specimens

The specimens in galleries are mostly dry preserved *i.e.*, mounted body (mostly tanned skin on mannikins), mounted heads, skulls, skeletons, stuffed birds etc. The wet or fluid preserved exhibits include specimens of entire structure, part of the body, foetus/embryo or visceral organs, suspended in spirit or formaline solution. Sometimes casts, models or pictures of animals are depicted on necessity.

Mammals: Specimens belonging to species of diverse habitats and size, covering major orders are displayed in the galleries. Some of the specimens have been shown in the habitat case to make them more lively (Fig.1). From the arctic bear, seals, walrus to the hot desert dwelling camel and wild ass, from the high altitude animals like the markhor, ibex, ammon to low riverine plain haunting bore, buffalo or rhino are displayed along with most fierce carnivores like the tiger, panther and most timid animals like the loris and mouse-deer. The wide ranging size from the tiniest mole to the gigantic Blue Whale, or large Indian Elephant, attracts the notice of the visitors. The lower jaw bones of a 84-feet long balaene whale, which was washed ashore dead upon the Amherst Island on the coast of Arakan in 1851, the hanging skeleton of a Rorqual Whale, in the centre of the hall, the skeleton of an Indian Elephant, which had an exceptional height of 11 feet 6 inches at the shoulder, are the gigantic specimens. Some of the mounted specimens like the Hunting Cheetah and Lesser One-horned Rhino, depict animals which are extinct in India now. One such specimen, an young male rhino, *Rhinoceros sondaicus* may be seen in the gallery, that was collected by W. Rutledge from Sunderbans in 1875. Many such specimens are very old and include some exotic animals. The skull of an African Wart Hog, collected from Abyssinian Expedition in 1868, two mounted horns of African rhino, collected by W. S. Sherwill in 1846, the mounted male langur, *Presbytis entellus*, collected by E. Blyth in 1842, skeleton of one African Cheetah, collected by E. Blyth in 1857, etc. are examples of some very old collections, though maintained in a very good condition. Some of the exhibits have great colourful history or pageant background, which correlate either to some incidents or memories: One of the mounted skeletons, belonging to a tame elephant of H. H.Maharaja of Banaras had the honour to lead the Royal procession of Delhi Darbar in 1902, a mounted albino tiger was presented by the prince of Gidhore, in memory of his Late father, king Chandra Mouleswar Prasad, who shot the beast; similarly another mounted male tiger, is a gift from Rani Shyama Sundari Debi of Burdwan, in 1915, in memory of her Late husband; the skeleton of a two-humped camel that was a favourite pet of the King of Oudh and died in his menagerie in 1878, are some of the examples. Full term abnormal human embryo, young goat with eight legs and four ears, kitten with a single head but with two distinct bodies—all fluid-preserved, are examples of anatomical anomalies. The domestic sheep with four horns or the feet of modern Arabian Horse with extra toe (4th digit) on each, purchased from Bagdad in 1870 (Fig. 2) are examples of other anomalies. The Narwhale, only mammal that (male) possesses a single persistant tooth, the platypus, a duck-like mammal that lays egg but suckle the young and many example like spiny ant-eater, armadilo, flying squirrel etc. are worth seeing. The mounted skeletons of large animals lik elephant, rhino, hippo etc. testify the skill and craftsmanship of the taxidermists of last century. These are very helpful in anatomical and palaeontological studies as comparative material. Unfortunately, some of the skeletons, belonging to both indigenous species like the gaur, gayal and to exotic species like the gnus of Africa were dislodged and removed under administrative policy, a few years ago. The displayed Anthropoid Apes *viz.*, Gorilla, Orang-Utan, Chimpanjee (Pongidae) all arrayed with that of the Man (Hominidae) to show disimilarities and resemblances are important for phylogenetic study.

Birds: Mounted stuff birds and skeletons belonging to both exotic and indigenous species are displayed in the gallery. These cover both flying and flightless birds and represent the major orders of the avi-fauna. In size from the large ostrich and Sarus Crane to tiny flower pecker and finch and of diverse ecological habitats: Species of the arctic region, temperate and tropical forests, grassland, desert, oceanic islands etc. have been exhibited. The brilliant colour and beauty of the pheasants, macaws, lorices, cockatoes, the graceful Indian Pea-cock, the Bird of Paradise are excellent exhibits. The birds are shown frequently with their nests, eggs and as far as possible are displayed in an artificial replica to impart a naturalistic veiw. A pair of Pallas Fishing Eagle will be seen with the original nest and eggs, which were collected from Palta, Calcutta by J. G. Fernandez in 1939. The Baya Weaver may be seen busy making their nests in one such habitat case. A large group of storks may be seen flocked together in a jheel. Foreign birds cover ostritch, rhea, cassowary, kiwi, penguin, love bird, macaw etc. Special postures like that of flight, combat, courtship display or feeding in some of the birds are very skilfully and effectively shown. Regular addition of birds like the megapod (collected by S. Saha) or White Bellied Sea-Eagle (collected by S. Chatterjee) are occasionally incorporated from Recent Survey Material.

Reptiles: Mounted specimens, skeletons and fluid preserved exhibits represent different species of turtle, tortoise, lizards, alligators, crocodiles, gharials and snakes. The Salt-Water Crocodile the largest living reptile, the giant gharial, long and robust python and king Cobra are displayed alongwith many small size snakes and lizards. Interesting specimens like the flying lizard, chameleon, tuatara or horned toad make the collection more attractive. In artificial replicas, animal like the crocodiles or combating pair of mongoose and cobra add extra show. Eggs or newly hatched youngs of reptiles are shown in fluid jars. The collection of some jewellery (Fig. 3), weighing about 7 kilograms, which belonged to women victims of a single crocodile (recovered from its stomach) some fifty years ago from Cuttack, Orissa may raise horor.

Amphibia : The amphibian exhibits are of course very meagre. Animals like the newts, Giant Salamander of Japan, Skipping Frog, Bush-Frog, Anderson's Toad, Ornate microhylid etc. have been displayed. These are mainly preserved in fluids, Metamorphosis in the amphibian has been illustrated for the learners. Unique specimen like the female Surinam Toad, which carries the eggs on her spongy and soft back until they develop to matured youngs, without possessing gills in any stage to lead a free life is interesting. The eggs are placed on the back of the mother toad by its partner male (parental care).

Fishes: Fishes belonging to different orders and of diverse habitats have been exhibited by stuff, plaster cast or by spirit preserved specimens. Species of different habitats: marine, fresh water, lakes, river, hill-streams and of cold and hot zones are seen in the gallery. From the cartillagenous sharks, rays, dog-fishes to teleostean cat-fishes, carps, perches etc. are displayed. Important commercial fishes (food-fishes) have been shown. Specially evolved or primitive fishes like the Ribbon-Fish, Goggle-Fish, Porcupine-Fish, Sturgeons, Electric

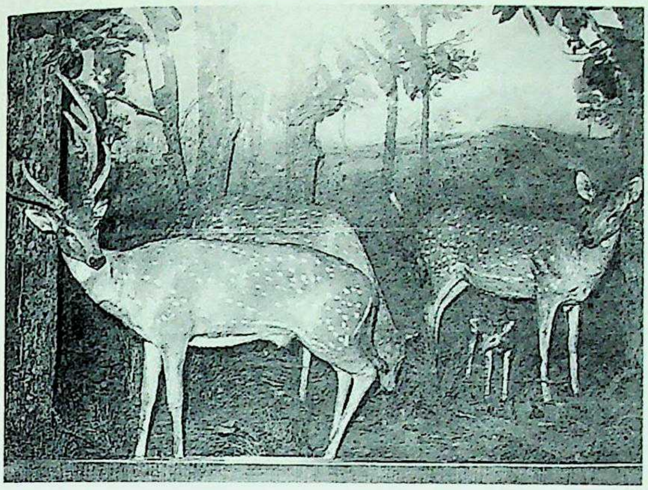

Fig.1

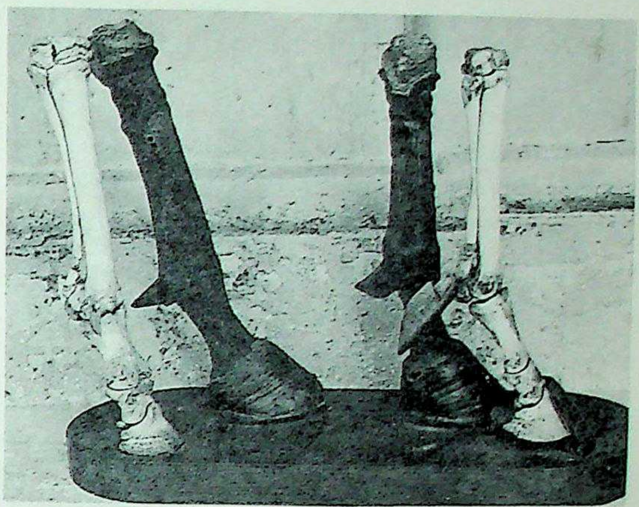

Fig.2

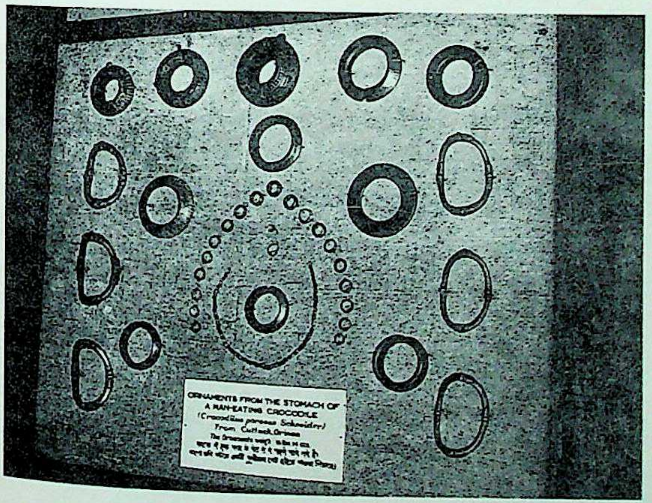
ORNAMENTS FROM THE STOMACH OF
A MAN-EATING CROCODILE
(Crocodilus porosus Schneider)
From: Cuttack, Orissa

Fig.3

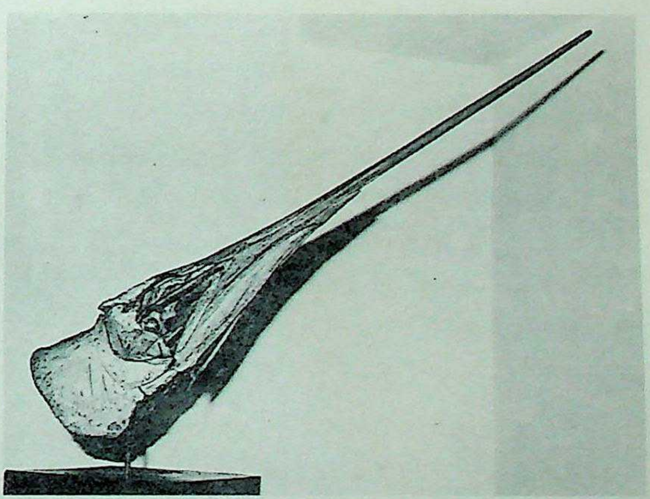

Fig.4

Ray-Fish, or Australian Lung-Fish, South American Mud-Siren draw attention. Moods of different postures of Pipe-Fish, Flying-Fish or Fish-Rain have been illustrated through pictures. Large cast of the marvellous Sail-Fish is quite attractive. And to this the exhibit of a piece of copper-sheathed plank belonging to the Vessel Barque Adele, pierced by the sword of a Sword-Fish (*Xiphias gladius)* (Fig. 4), during her voyage on 24 Jan., 1833, would add as a hair-raising view. This giant fish exceeds 4-meters in length and weighs about 300 kg. It very often attacks boat, shark and whale.

Insects: The re-established entomological gallery display a number of species belonging to both Apterygota and Pterygota Orders with different moods of life: aquatic, terrestrial, free-living, parasitic, social. Their eggs, nymphs/larvae or adult forms are occasionally illustrated to show metamorphosis. Special importance are laid to exhibit some of the economically important insects of the country *viz.*, silk worms,honeybees, lac insects etc. as beneficial and termites, mosquitoes and agricultural pests as harmful insects. A number of beautiful butterflies like the Papilionids, Arctidid moths, and brilliantly coloured Chrysomelid, Cicindelid beetles are very attractive. On the other hand some clumsy or bizzaring insects like the Walking-Sticks, Leaf-Insects, Locusts, Giant Water-Bugs etc. are also stowed with care. Huge termite mound, and nest and beehive are some of the naturalistic displays.

Maintenance

All the zoological collections of the extant species in the galleries are under the custody of the Zoological Survey of India and maintained by the Museum & Taxidermy Section. Collection, preservation, restoration, display and documentation are main duties of the staff. In this tropical and humid country specimens are vulnerable to the attack of weathering, fungus, chothes-moths, carrion-beetles, silver-fish and many saprophagus insects. To get rid of these, the gallaries, specially the cabinets and show-cases are tried to be made as far as possible moisture-proof and insect-resistant. As the gallery-halls are not installed with air-conditioners, attempt to keep the ambient temperature below 20^0 C is saught. Selected preservatives and insecticides, that do not bleech or corrode specimens, are generally used at regular intervals. The feathery or woolly specimens are tended with special care. Lebels or captions if get soiled or withered, are renewed or re-written without omission of any of the earlier *data*. The Register-books are maintained to keep data and account of each specimen. Overall tending of the galleries rest upon the Curator.

Scope

The museum-preserved specimens are very valuable as dependable samples for zoological research or reference. It is extremely helpful for scholars as well as for students in comparative anatomy, phylogenetic study, zoo-geography and ecological investigations. For student of zoology museum is the best source to achieve knowledge on aspects like adaptive radiation, speciation etc. He may very conveniently assimilate the same through the study of museum specimens. For instance, the vertebrae of the neck in the mammals are always seven in number, which is evident in any of the exhibited mammalian skeletons, whether it is long-necked giraffe or short-necked hippo. Similarly the concept that the coat or feather colour of species or their sub-species generally varies with their surroundings *viz.,* paler in icy or frozen zone; grey or sandy in arid zone; dark or mottled in humid forest ; may be verified from a look upon the displayed specimens.

The present collection may be much enriched by adding link species and recently discovered specimens like the Coelacanth, Okapi etc.

EXPLANATION OF FIGURES

Figure 1. A few Chital Deer, in a habitat-case.

Figure 2. Two pairs of limbs belonging to an Arabian horse which show unusual presence of 4th digit on each.

Figure 3. The set of Jewelleries, recovered from the stomach of a man-eating crocodile.

Figure 4. Skull with the sword of a sword-fish, a daring species of marine fish.

MEDICINAL GUMS & RESINS ORNAMENTED THE BOTANICAL GALLERY, INDIAN MUSEUM

S. K. MANDAL & MRS. R. DASGUPTA

GUM & resins originate from a wide variety of plants and occupy a place of honour in the field of human ailment. They have also multiple uses in food, paper, taxtile, printing, water colour, varnishes and ink industries. They are exuded by plants as a result of disease of injury to the bark or wood. The chief source is the stems but they can also be obtained from roots, leaves and other parts of the trees. The most common harvesting practice for gums in India is hand picking. Commercial collection of them in India has been done by individual leases. The tapping methods followed by these people have been very destructive which have resulted in considerable losses of timber.

134 species of gums and resins are exhibited in the Botanical Gallery, Indian Museum of which 22 species have extensive medicinal value. Attention was made to apply them in different human ailments from the early part of civilization. These generate considerable interests amongst the visiting public, the students, researchers and traders in particular. To cater the need of the public in general and traders in particular the authors have attempted to collect the data on different aspects of these 22 species of gums and resins used in medicine.

The information includes the scientific name, trade name, local names, source and properties, medicinal uses and distribution of each species of gums and resins. The described species are *Acacia nilotica* (L.) Del., *A. senegal* Willd. (Leguminosae); *Ailanthus malabarica* DC. (Simarubiaceae); *Anogeissus latifolia* DC. Ex. Bedd. (Combretaceae); *Aquailaria agallocha* Roxb. (Thymelaeaceae); *Bombax ceiba* L. (Bombacaceae); *Boswellia serrata* Roxb.(Burseraceae); *Buchanania lanzan* Spreng. (Anacardiaceae); *Butea monos perma* (Lam.) Taub. (Leguminosae) ; *Cochlospermum reliqiosum* (L.) Alston (Cochlospermaceae) ; *Commiphora mukul* (Hk. ex Stocks.) Engl., *C. myrrha (Ness)* Engl., C. *playfairii* HK. f. (Burseraceae) ; *Dipterocarpus indicus* Bedd. (Dipterocarpaceae) ; *Gardenia qummifera* L. f. (Rubiaceae); *Hopea odorate* Roxb. (Dipterocarpaceae) ; *Pinus roxburghii* Sargent (Coniferae); *Pterocarpus indicus* Willd., *P. marsupium* Roxb. (Leguminasae) ; *Shorea robusta* Gaertn. (Dipterocarpaceae) ; *Sterculia urens* Roxb. (Sterculiaceae) and *Vateria indica* L. (Dipterocarpaceae).

Acacia nilotica (L.) Del. (Luguminosae) (=*A. arabica* Willd.)

Trade name:

Babul

Local name :

Babul (Bengali, Hindi & Marathi) ; Barburaha (Sanskrit) ; Nallatumma (Telegu); Karuveli (Tamil).

Source and properties of gum :

The gum exudes from wounds in the bark, mostly during March to May. Maximum yielding per tree is 2 lbs. a year & average is only a few ounces. The moisture content of the gum is 13%; on ignition it leaves behind 1.8% of ash. It is solubl in water and not in alchohol (Sastri *et. al.*, 1948).

Chemically gum Babul consists of *Arabic Acid* in combination with calcium, magnesium and potassium. By the action of dilute sulphuric acid Arabin is converted into Arabinose, a crystalline principle, which is sweet. By the action of dilute nitric acid, muric acid and saccharic acids are obtained. Gum dried in the air contains 85.25% of organic matter, 3.15% of ash and 11.60% of water. The ash contain the average of 48% of calcium, 18% magnesium and 34% of potassium (Warden & Hooper, 1890 ; Nadkarni, 1908).

Medicinal uses:

The gum is used in the preparation of the mucilage which is applied in diarrhoea and dysentery. The mucilage is also used as an injection to allay the irritation of gonorrhoea and to lessen the discharge. It has also been found to allay rectal irritation in the diarrhoea and dysentery of children when given as an injection. Excellent mucilage from gum used in gastro-intestinal irritation. Some native Hakims say the gum is very useful in diabetes mellitus. The powdered gum is useful, combined with quinine, in fever cases complicated with diarrhoea and dysentery (Watt, 1885).

There are two kinds of gum—the red and white—the former is used in coughs, rheumatism, mucous discharges. It acts as a demulcent and employed as a local application in bleeding and to burns (Powell, B.H. 1868).

The gum is astringent to the bowels, antidysenteric, styptic, sweetish, expectorant, tonic to the liver, antipyretic; cures biliousness, leprosy, urinary discharges, vaginal and uterine discharges, sore throat, lung troubles, piles, burns ; enriches the blood and heals fractures (Kirt. & Basu, 1918).

Distribution:

The tree is indigenous to Sind, the Deccan Peninsula and Tropical Africa and is naturalised in all parts of India.

Acacia senegal Wild. (Leguminosae)

Trade name :

Senegal gum.

Local name :

Kumta (Rajputana) ; Kher (Sind).

Source and properties of gum :

This tree yields the true gum arabic. It is somewhat darker in colour and almost odourless and had a bland taste. It is soluble in water and gives a translucent, viscous and slightly acid solution. It is insoluble in 90% alcohol. The 10% aqueous solution is slightly leavorotatory. A 1% solution does not give a precipitate with neutral lead acetate and is not coloured by iodine solution. Gum of pharmacy quality does not give reaction with ferric-chloride (Watt, 1885).

Medicinal uses:

The gum is mostly used in medicine as a demulcent and emollient. It is used externally in burns, sore nipples etc. The powdered gum has also been found useful in checking haemorrhage from leech-bites and when blown up the nostrils it arrests severe epistaxis. Internally it is used in inflammations of the gastric and internal mucous membrane. The gum is found serviceable in allaying cough and it has also been recommended as a substitute for food in diabetes (Sastri *et al.,* 1948 ; Kirt. & Basu, 1918).

Distribution :

The tree is found on the dry rockey hills of Sind, in south-east Punjab, in the northern Aravalli hills and other parts of Rajasthan. It is abundant in Sudan, Central Africa and Senegal.

Ailanthus malabarica DC. (Simarubiaceae)

Trade name:

Bassora or Hay gum

Local name:

Hal-maddi (Kanadi) ; Mattipal (Malayalam) ; Perumaram (Tamil); Peddamanu (Telegu).

Source and properties of resin :

On incision the barks yield a dar-coloured soft resin known as *mattipal*. If left for a long time it becomes brittle. The resin is soluble in alchohol and on evaporation leaves it as a very viscous, transparent, light-brown semi-liquid. When burnt the resin gives a fragrance and hence burnt as an incense in many Hindu Temples (Watt, 1885).

The gum is terebinthinate-stimulant, its action being chiefly directed to the mucous surface of the genito-urinary organs and of the large and small intestines (Kirt. & Basu, 1918).

The gum contains 77% of pure resin of a strong balsamic odour, the rest being impurities. There are three varieties of resin soft, flat and hard ; the first variety is most useful (Nadkarni, 1908).

Medicinal uses :

The resin is used medicinally in Indian jails as an excellent remedy in dysentery. It regards as a good stimulant in bronchitic infections. (Watt, 1885).

The powdered resin mixed with milk is given in small doses in dysentery and also in bronchitis and is reputed to be an excellent remedy, chiefly owing to its balsamic properties (Kirt. & Basu 1918).

Distribution:

The trees are found in the evergreen forests of Western Ghats, often planted in South India.

Anogeissus latifolia DC. ex. Bedd. (Cambretaceae)

Trade name:

Axele-wood.

Local name :

Dhavdo (Gujrati) ; Dhawa, dhaura (Hindi) ; Dinduga (Kanadi) ; Marukinchiram (Malayalam); Dhaura (Marathi) ; Vellay naga (Tamil); Chirimanu, yella maddi (Telegu).

Source and properties of gum:

The tree yields gum which is a good substitute for gum arabic, straw-coloured vermiform tears and dries without cracking. Due to impurities sometimes it appears brown. It is partially soluble in water forming a colourless mucilage.

Medicinal uses:

The gum of this tree is used by the santals in the treatment of cholera (Watt, 1885).

Gum is astringent and used in confectionary; drug is used in scorpion-sting and snake-bite (Nadkarni, 1908).

Distribution :

The tree is found sub-Himalayan tract from the Ravi to Nepal, Bihar, Chota Nagpur, Central India and extends South wards to the drier regions of Ceylon. It ascends to 1250 m. in the Himalayas and the South Indian Hills.

Aquilaria agallocha Roxb. (Thymelaeaceae)

Trade name:

Aloe-wood, Eagle-wood.

Local name:

Sasi (Assamese); Agaru (Bengali); Akyay (Burma); Agar (Hindi); Aguru (Sanskrit and Tamil).

Source and properties of resin:

The wood of this tree is impregnated with a resinous principle to form irregular patches of dark wood called agar and often found collected in masses here and there throughout the stem. The agar-bearing tree is somewhat diseased in appearance and frequently found in young trees about 20 years old. True agar is hard, brown, rich in resin and heavier than water. It is slightly bitter with aromatic taste and have a peculiar odour. It burns with a bright flame giving off a pleasant smell. Agar wood is highly charged with resinous matter and contains 48% of alchohol soluble matter (Watt, 1885).

Medicinal uses:

Agar is a stimulant, cordial, tonic and carminative. It is useful in gout and rheumatism. The powder of this resin is useful as a restrainer of fluxes and vomiting. In decoction it is useful to allay thirst in fever. It was formerly much used in Europe in gout, rheumatism, diarrhoea, vomiting and palsy (Watt, 1885).

Distribution:

It is distributed in eastern India particularly parts of Bengal, hill forest of Khasia, Garo, Naga, Cachar and Sylhet in Assam. In Burma it occurs on the Martaban hills of South Tenasserim. It is also occurs in Bhutan.

Bombax ceiba L. (=B. *malabaricum* D.C.)

Trade name:

Semul-gum, Mocharas.

Local name:

Simul, roktosimul, Shembal (Bengali) ; Sawar, Simalo (Gujrati); Semul, Shembal, Pagun (Hindi); Mullilavau, pula-maram (Malayalam); Edelsong (Mundari); Bouro, buroh (Oriya); Salmali, Rakta-pushpa (Sanskrit); Pulai (Tamil); Booruga (Telegu).

Source and properties of gum:

The tree exudes a gum called semul-gum or mocharas from its natural wounds caused by insects but does not exudes gum from artificial wound. The gum is light brown in colour, nodular, hollow tears which turns deep-brown and later become opaque and dark-brown. It is almost insoluble in water (Watt, 1885).

The gum contains a large proportion of tannic and gallic acids and may be successfully employed in cases requiring astringents (Kirt. & Basu, 1918).

Purified gum contains 8.9% mineral matter and a considerable proportion of catechol tannin. On complete hydrolysis it yields a mixture of L-arabinose, D-galactose, D-galacturonic acid and possibly rhamnose. The gum also contains tannic and gallic acids (Sastri *et al.*, 1948).

Medicinal uses:

The gum is better, astringent, stimulent, tonic, alterative, styptic and demulcent. It is used for treating acute dysentary, haemoptysis of pulmonary tuberculosis, influenza and menorrhagia.

In Gujrat powder of gum mixed with milk used as tonic. It is given to children as a laxative (Watt, 1885).

Distribution:

The tree is widely distributed throughout India and the Andamans ascending the hills upto 1,500 m. or even more. It is the largest and most characteristic tree of Eastern Rajasthan.

Boswellia serrate Roxb. (Burseraceae)

Trade name:

Salai, Indian olibanum.

Local name:

Salai (Bengali, Hindi and Marathi); Madi (Kanadi); Sallaki or Kunduri (Sanskrit); Parangisambrani (Tamil and Telegu).

Source and properties of gum-resin:

The resin is very brittle, varies in colour from transparent golden-brown to dark greenish-brown. It is pungent, having a slightly aromatic taste and balsamic resinous odour. It is soluble in most organic solvents, and does not dissolve completely in Sodium carbonate solution even on prolonged boiling (Watt, 1885).

Medicinal uses:

The gum of salai was regarded as a demulcent, aperient, alterative and purifier of the blood. The gum at the present day is used in rheumatism, nervous diseases, Scrofulous affections, urinary disorders and skin diseases. It is regarded as a diaphoretic and astringent and used in the preparation of ointment for sores. It is also prescribed with clarified butter in syphilitic diseases; with coconut oil for sores and as a stimulant in pulmonary disease (Watt, 1885).

Gum is useful in skin and blood diseases, fevers, diaphoresis, convulsions, mouth sores, vaginal discharges, dysentery, diabetes, diseases of the testis, ophthalmia, bronchitis, asthma and jaundice. The gum-oleo resin is recommended in combination with other drugs for the treatment of snake-bite and scorpion-sting (Kirt. & Basu, 1918).

Distribution:

Madhya Pradesh, Deccan, Peninsula, Bihar, Orissa, Rajasthan and North Gujarat. It is not found in Assam and West Bengal.

Buchanania lanzan Spreng. (Anacardiaceae) [=B. *Latifolia* Roxb.]

Trade name:

Chironji.

Local name:

Pival, chironji (Bengali); Charoli (Gujrati & Marathi); Piyar, Charoli, Chironji (Hindi); Nurkal (Kanadi); Sara (Telegu).

Source and Properties of gum:

A pellucid gum exudes from wounds on the stem. It occurs in irregular broken fragments, brittle, pale, horn-coloured, tinged with brown, tasteless, soluble in water, having adhesive properties similar to the inferior kinds of gum arabic.

Medicinal uses:

The gum is said to be administered in diarrhoea (Watt, 1885). In the Madras Presidency, the gum with goat's milk is given internally for intercostal pains. It is also administered in diarrhoea (Kirt. & Basu, 1918).

Distribution:

The tree is found throughout India in dry deciduous forests; in N. W. India from the Sutlej to Nepal ascending to 915 m.

Butea monosperma (Lam.) Kurtz. (Leguminoceae) (=B. *frondosa* Koenig, *ex* Roxb.)

Trade name:

The Flame of the Forest; Butea gum; Bengal kino.

Local name:

Palas (Bengali & Marathi); Khakra (Gujrati); Dhak palas (Hindi); Mutthuga (Kanadi); Palas in Samatha (Malayalam); Palasha (Sanskrit); Parasa (Tamil); Moduga (Telegu).

Source and properties of gum:

The gum yields naturally or from artificial scars on the bark. This occurs in the form of round tears, often fragmentary, ruby coloured and astringent. It is translucent but with age it darkens and becomes opaque.

The gum contain 50% kino-tannic and gallic acids, 2% soluble mucilage and ash; on dry distillation it yields Pyro-catachin (Nadkarni, 1908; *Sastri et al.*, 1948).

Roxburgh pointed out that this gum is more soluble in water than in spirit and the solution is astringent. It yielded 1.8% of ash and contained 13.5% of water. Boiling alchohol dissolves this kino to the extent of 46%; the solution produces an abundant greyish-green precipitate with perchloride of iron and a white one with acetate of lead (Watt, 1885).

Medicinal uses:

It is an excellent astringent, similar to catechu, but being mild in operation it is better adopted for children and delicate females. The dose of the powdered gum is 10 to 30 grains, with a few grains of cinamon. The addition of a little opium increases the efficacy (Watt, 1885).

The gum is very astringent and in doses of five grains most useful in checking serious diarrhoea. In large doses it is efficacious in hoemorrhage from the stomach and bladder. A strong solution of gum is said to be a very useful application for bruises and erysipalous inflammations (Watt, 1885).

The gum is a good astringent in diarrhoea and dysentery and useful in diseases of the chest and lungs, in syphilis, ulcers and relaxed sore-throats (Kirt. & Basu, 1918).

Distribution:

Common throughout India upto 1200 m. except in very arid parts.

Cochlospermum religiosum (L.) Alston (Cochlospermaceae) (=*C. gossypium* DC.)

Trade name:

Katira gum, country Tragacanth.

Local name:

Kambi (Hindi); Arasinabaraga (Kanadi); Appakutakka (Malayalam); Gaseri (Marathi); Kongilam (Tamil); Kondagogu (Telegu); Kontopalas (Oriya).

Source and properties of gum:

The gum exudes from the fibrous, deeply furrowed bark. It is similar in appearance and properties to Kadiya gum obtained from *Sterculia urens* Roxb. The gum is pale and semi-transparent, transversely striated, with a tendency to split into flat scales. It gives off acetic acid slowly on exposure to moist air. It is insoluble in water (*Sastri et al.*, 1950). This gum absorbs large quantities of water with consequent swelling (Kirt. & Basu, 1918).

Chemically gum 'Katira' consists of 50% pentosams and galactans and on hydrolysis with mineral acids yields 14% acetic acid, gonolic acid, cochlospermic acid, xylose and galactose (*Sastri et al.*, 1950).

Medicinal uses:

The gum is sweetish cooling, sedative and useful in coughs. It is good in gonorrhoea, syphilis, asthma, eye troubles and trachoma. It softens the skin (Kirt. & Basu, 1918).

The gum is a substitute for Tragacanth. It is useful in hoarse throat and acalding in the urine. Mixed with curds or whey it is largely used in diarrhoea and dysentery (Nadkarni, 1908).

Distribution:

The tree occurs all over India from West Sub-Himalayan tracts to Bengal, Bihar, Orissa, Central India and Decan Peninsula. It is common in hot, dry and stony regions.

Commiphora mukul (Hook. *ex* Stocks) Engl. (Burseraceae) (=*Balsamodendron mukul* Hook. *ex* Stocks).

Trade name:

Gum Gugul.

Local name:

Gugul (Bengali, Hindi, Gujrati); Guggule (Kaṇadi, Marathi); Maishakshi (Tamil); Guggul (Telegu).

Source and properties of gum and resin:

Gum-resin obtained by incision of the bark. The resin occurs in vermicular pieces, pale yellow, brown, or dull-green in colour with a bitter aromatic taste and balsamic odour (*Sastri et al.*, 1950).

Chemically gum-resin guggul consists of about 4.65% foreign matter and about 1.45% of an aromatic essential oil besides gum and resin. A sample of oleo-gum-resin from Ajmer-Merwars contained moisture 6.1%, volatile oil 0.6%, resin 61%, gum 29.3% and foreign matter 3.2%. The resin can be separated from the gum either by hot expression at 120°-130° or by solvent extraction. The yield by the former process is about 10% less than that obtained by solvent extraction (Dutt *et al.*, 1942).

Medicinal uses:

Guggul has a wide range of usefulness in indigenous medicine. It is astringent and antiseptic. When taken internally it acts as a bitter, stomachic and carminative, stimulating the appetitie and improving the digestion. Like all oleo-resins and stimulates phatogytosis it acts as a diaphoretic, expectorant and diuretic, and is said to be uterne stinulant and emmenagogue.

The resin is used in the form of a lotion for indolent ulcers and as a gargle in caries of the teeth, weak and spongy gums pyorrhoea, alveolaris, chronic tonsilitis, pharangytis and ulcerated throat. It is also used as stomachic in chronic dyspepsia with dilatation and stony walls of the stomach. Inhalation of recommended in hay fever, acute and chronic nasal catarrh, chronic laryngitis, chronic bronchitis and phthisis (Watt, 1889; Nadkarni, 1908).

The gum cures indigestion, leucoderma, tubercular glands in the neck and useful in a scites, troubles of the chest, muscular rheumatism, lung complaints and piles. It is applied locally as a paste in haemorrhoids, incident abscesses and bad ulcers. The gum in combination with other drugs is prescribed in the treatment of snake-bite and scorpion sting (Kirt. & Basu, 1918).

Distribution:

Occuring in the arid rocky tracts of Rajasthan, Khandesh, Mysore, Sind and Baluchistan. It is sometimes planted in hedges.

Commiphora myrrha (Nees) Engl. (Burseraceae) (=*Balsamodendron myrrha* T. Nees).

Trade name:

Myrrh.

Local name:

Gandha-rasaha, Bol (bengali); Duk (Hindi); Bola (Kanadi); Hirabol (Gujrati); Veelaippolam (Tamil); Balimtra-polam (Telegu).

Source and properties of gum:

Gum exudes from the bark of the tree. Myrrh is in a soft oily state which soon hardens by exposure to air. It is aromatic, of balsamic odour, bitter in taste and externally astringent.

Medicinal uses :

Gum-resin of Myrrh is beneficial in dyspepsia, amenorrhoea, and chlorosis and is a useful stimulant and astringent to all ulcerations or congestions of the mucous membrane. It has a useful application to old, foul and indolent ulcers, and a valuable for the mouth and gums, and a gargle in ulcerated sore-throat. It is a stimulant expectorant, much admired as a remedy for pulmonary affections, specially the asthma of the aged (Watt, 1885; Nadkarni, 1908).

Distribution:

A native of Arabia and of the African coast of the Red Sea. Often cultivated in western India.

Dipterocarpus indicus Bedd. (Dipterocarpaceae) *(=D. turbinatus* Gaertn. f.)

Trade name :

Gurjun.

Local name:

Garjan (Bengali); Gurjun (Hindi); Banasampa (Kanadi); Kakka (Malayalam); Enney (Tamil).

Source and properties of resin:

The oleo-resin is an opaque grey fluid which on standing separates into 2 distinct layers, a viscid liquid of dark reddish brown colour at the top and a thick dirty white stratum below. The top layer has a feeble copaiba-like odour and a bitter aromatic taste (*Sastri et al.,* 1952).

Chemically oleo-resin of Gurjun contains: acid val. 11.6, sap val. 14.9, and sap val. after acetylation 50.4 (Nair, 1939-46).

Medicinal uses:

Oleo-resin from *D. indicus* is said to be used as an application for rheumatism (*Sastri et al.* 1952).

Oleo-resin is externally applied to ulcers, ring-worm and other cutaneous affection. It is stimulant of mucous surfaces particularly that of the genito-urinary system. In gonorrhoea and other affections in which copaiba is generally employed, it has proved an effectual remedy (Kirt. & Basu, 1918).

Distribtuon:

Found in mixture with other trees in the evergreen forests of western ghats from North Kanara southwards, upto an altitude of 900 m.

Gardenia gummifera L. f. (Rubiaceae).

Trade name:

Dakamali, Cumbigum.

Local name:

Dikamali (Bengali, Hindi, Marathi); Kamarri (Gujrati); Cittutsikke, Dikkemali (Kanadi); Gurudu, Bryddhikoli (Oriya); Kambilippicin (Tamil); Manchi (Telegu).

Source and properties of gum-resin:

The resin is secreted freely in the form of tears. The shoots and buds are broken off with the tears of resin attached and marketed either in this form or after agglutination into cakes on irregular masses. The resin is transparent, greenish yellow, with a sharp pungent taste and a peculiar offensive odour (*Sastri et al.*, 1956).

A commercial sample of dikmali contains resin 89.9%; steamvolatile oil 0.1%; and plant impurities 10.0%. The resin has the following characteristics: acid val. 87.1; iod. val. 80.8; and sap. val. 172.3. It yields a colouring matter, gardenin. Sample of dikamali which are deep yellow in colour gives higher yields of gardenin (Balakrishna & Seshadri, 1948).

Medicinal uses:

Gum-resin of Dikamali is beneficial in antispasmodic, expectorant, carminative, diaphoretic and anthelmintic. It is given to children in nervous disorders and diarrhoea due to dentition and rubbed on gums to ally irritation. It is also used in fevers. In dyspepsia attended with flatulence, the resin has been frequently used with advantage. Externally, it acts as an antispetic and stimulant. The resin is extensively employed in veterinary medicines to keep away flies from sores, for destroying maggots in wounds and as sheep wash (Howes, 1949).

Distribution:

Found throughout the Deccan Peninsula extending northwards to Bundelkhand and parts of Bihar.

Hopea Odorata Roxb.(Dipterocarpaceae).

Trade name:

Thingan, white Thingan.

Local name:

Thingan, Rimda (Andamans); Bilitirupu, Kallurala (Kanadi); Urappimpasa (Malayalam); Urappuppicin(Tamil).

Source and properties of resin:

A copal-like resin yield by the tree is known as rock Dammar in commerce. The resin consists of large, yellow, irregualr tears with slight odour and shiny fracture. It is completely coluble in turpentine oil and partially in alchohol. The resin has ben classed commercially as a second quality dammer (Watt, 1890).

The chemical analysis of the resin gives the following characteristics: sap val. 37.1, acid val. 31.5 and ash 0.56% (*Sastri et al.,* 1959).

Medicinal uses:

The resin has styptic properties and is used by the Burmese as an ointment for wounds and sores (Kirt. & Basu, 1918).

Distribution:

Found in Andamans; from Pegu and Tenasserim to Chochin-China; sometimes cultivated in West Bengal and parts of the western coast.

Pinus roxburghii Sargent (coniferae) (=*P. longifolia* Roxb.)

Trade name:

Chir, chil.

Local name:

Saralagachha (Bengali); Chir pine, Chir (Hindi, Punjabi); Sarl (Kashmiri); Saralam (Malayalam); Saraladeodara (Marathi); Simaidevadari (Tamil).

Source and properties of gum-resin:

Resin exudes by tapping of the tree which are two types—light tapping and heavy tapping, also termed as "tapping to death". Normally tapping commences in March and continues till November. In the light tapping the tree are tapped for a period of 4 years followed by a rest-period of 8 years (*Sastri et al.,* 1969).

Olio-resin of chir is the main source of turpentine oil. Crude oleo-resin contains 30% of terpentine of best quality. After distillation with water the resin remaining in the still a dull brown in colour (Watt, 1892).

The gum is bitter, acrid with a bad smell and taste (Kirt. & Basu, 1918).

Medicinal uses:

The crude oleo-resin is described to be applied to buboes and abscesses for the purpose of promoting absorption. The purified and crude oleo-resins are employed both as external and internal remedies and are chiefly used for making pectoral plaster like the pitch-plaster of Europe. Dymock states that the *Vaids* obtain from the oleo-resin, by distillation without water, a limpid sharry-coloured oil, having the peculiar odour of the drug, which they call *Khanno oil* in the Deccan, is much repute as a remedy for gleet or long-standing gonorrhoea. According to Baden Powell the crude oleo-resin is used in Punjub as a stimulant diuretic in diseases of the urinary organs, chronic bronchitis and haemorrhages, and also in rheumatism and fevers (Watt, 1892).

The resin is used as a stomachic and externally as a plaster. The gum is diuretic, emmenagogue, purgative, expectorant and useful in inflammations, asthma, chronic bronchitis, ozoena, piles, diseases of the liver and spleen, gleet, urinary discharges, toothache, lumbago and epilepsy (Kirt. & Basu, 1918).

Distribution:

Along the Himalayas 450-2,400 m. from Arunachal to Kashmir and in the Siwalik Hills.

Pterocarpus indicus Willd. non Baker (Leguminosae)

Trade name:

Malay Padauk.

Local name:

Vengai (Tamil); Yerravegisa (Telegu).

Source and properties of gum:

The gum is almost identical in characters with kino, but it is black and opaque and does not give a solution like good kino. Nevertheless, careful solar dried gum is as good a drug as the true Indian kino (Watt, 1892).

Medicinal uses:

The gum is largely used as a substitute for true kino in the treatmet of toothache, diarrhoea and dysentery (Watt, 1892).

Distribution:

Native of Malaysia; introduced and planted in the Andamans, West Bengal, Madras and Maharashtra.

Pterocarpus marsupium roxb. (Leguminosae)

Trade name:

Pitshal (Bengali); Biyo, Hiradakhan (Gujrati); Bijasal, Bija (Hindi); Hone, Bange (Kanadi); Venga (Malayalam); dhorbenla, Asan, Bibla (Marathi); Byasa (Oriya); Vengai (Tamil); Yegi, Peddagi (Telegu).

Source and properties of gum:

The exudate gum is collected from the incision of the bark and dried in the sun to yield dried gum or gum-kino. It occurs angular, glistening, brittle fragments, appearing almost black in colour. It is odourless and bitter with astringent taste.

Kino contains a non-glucosidal tannin kinotannic acid, kinoin and kino-red, in addition to small quantities of catechol, protocatechuric acid, resin, pectin and galic acid. The therapeutic value of kino is due to kinotannic acid, which form 70-85% of the drug of good quality (Kirt. & Basu, 1918).

Medicinal uses:

Kino is used in the treatment of diarrhoea and dysentery. It is locally applied in leucorrhoea and in passive haemmorrhages. It is also used for toothache (W.S.D., 1955).

The gum is useful in diseases of the blood, eruptions on the body, leucoderma, erysipelas, urinary discharges, anal troubles, leprosy, eye troubles. It is used for toothache on the Coromondel coast. It is a good astringent in diarrhoea and pyrosis (Kirt. & Basu, 1918).

Distribution:

Found commonly in hilly regions throughout the Daccan Peninsula, and extending to Gujrat, Madhya Pradesh, Uttar Pradesh, Bihar and Orissa.

Shorea robusta Gaertn. (Dipterocarpaceae)

Trade name:

Sal.

Local name:

Sal, Sakhu, Shal (Bengali & Hindi); Kabba (Kanadi); Ral, Rala (Gujrati & Marathi); Maramaram (Malayalam); Kungiliyam (Tamil); Gugal (Telegu).

Source and properties of resin:

On tapping the sal tree yields an oleo-resin known as Sal Dammar or Bengal Dammar. It usually occurs in rough, stalactitic, brittle pieces, 16-20 cubic cm. in size, pale creamy-yellow in colour, nearly opaque and having a faint resinous—balsamic odour (Puntambekar, 1945-46).

The chemical analysis of the resin shows that it has sap. val. 35-37; acid val. 22-24 and Sp. gr. 0.94-0.96 (*Sastri et al.*, 1972).

Medicinal uses:

The resin is used in the indigenous systems of medicine as an astringent and detergent and is given in diarrhoea and dystentery. it is also used as an ingredient of ointments for skin diseases and in ear troubles (Krishna & Badhwar, 1947).

The resin is regarded as astringent and detergent. It is used in dysentery and for plasters and fumigations. It is commonly given for weak digestion, gonorhoea and as an aphrodisiac. It is useful in toothache, ulcers, burns, pains, itching, fractures and vaginal discharges (Kirt. & Basu, 1918).

Distribution:

Found extensively in parts of North, East and Central India.

Sterculia urens Roxb. (Sterculiaceae)

Trade name:

Karaya, Kadaya, Indian Tragacanth.

Local name:

Gular, Gulu (Hindi); Karai, Kagdol (Gujrati); kempudale (Kanadi); Kandol (Marathi); Thondi (Malayalam); Kanalam (Tamil); Errapunikichettu (Telegu).

Source and properties of gum:

The gum exudes naturally from the bark throughout the year but most of its is generally produces by tapping the bark. It is water soluble.

The gum is a complex polysaccharide of high molecular weight. On analysis it gives: moisture 16.84%; Protein 0.63%; fat 0.28%; crude fibre 0.41%; acetyl group 6.72%; uronic acid 31.91% and ash 5.92% (Broker & Bhat., 1953).

Medicinal uses:

The gum is used in pharmaceutical and medicinal preparations such as lozenges, emulsions, lotions, sprays and pastes. Also used in the preparation of denture-fixative powders. The gum is also reported to be useful for the affections of throat (Chatterjee & Dey, 1966).

The gum known as *Karai-gond* is used as a substitute for tragacanth in Bombay. The Santals consider the gum a useful medicine in throat affections (Kirt. & Basu, 1918).

Distribution:

Found in the outer Himalayas and the sub-Himalayan tract from the Ganges eastwards, Gujrat, Rajasthan, Central India, Deccan and on the West Coast in Konkan and North Kanara.

Vateria indica L. (Dipterocarpaceae)

Trade name:

Yellapiney, white Dammar, Pine Resin, Indian Copal Tree.

Local name:

Chundrus (Bengali); Kahruba (Hindi); Dhupadamara (Kanadi); Vellakunturukkum (Malayalam); Ajakarna (Sanskrit); Vellaidamar (Tamil); Telladamaru (Telegu).

Source and properties of resin:

The resin is exuded by tapping the tree. Resins are found in three forms (1) compact form, (2) cellular form and (3) dark coloured form. The first one occurs as solid lumps and is regarded as the best quality. It is very hard and bright orange to dull yellow. It is readily dissolves in turpentine.

The resin is a complex mixture of several triterpene hydrocarbons, ketons, alchohols and acids alongwith small amounts of sesquiterpenes. On distillation, the oleo-resin gives an essential oil (76%) with a stra balsamic odour (Puntambekar, 1945-46; Dutt, 1960-61).

Medicinal uses:

The resin credited with tonic, carminative and expectorant properties and is used for the treatment of several diseases, such as throat trouble, chronic bronchitis, piles, diarrhoea, rheumatism, tubercular glands, boils etc., Mixed with sesamum oil, it is given in gonorrhoea and with ghee and long paper for the treatment of syphilis and ulcers. An ointment of the resin with wax and the fat of *Garcinia indica* is said to be effective in carbuncles (Chopra, 1958; Bhargava and Chouhan, 1968).

Distribution:

It is indigenous to the evergreen forests of the western ghats from North Kanara to Kerala. it is also extensively planted in Karnataka.

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BOOK REVIEW

(Being a review of **"Jharkhander Bidroho O' Jiban"** in Bengali by **Pasupati Prasad Mahato**, Calcutta, 1982, pp. 115, Rs. 12/-)

WITH this work Sri Pasupati Prasad Mahato, has become undoubtedly a pioneer researchist in tracing the Cultural history and life of the people of the Jharkhand area. Although some scholers both Indian and foreign presented some superficial informations about the people of this area, yet none of the results was comprehensive and as such their efforts failed to present a clear picture regarding the struggle of the Jharkhand people in different periods as presented by Sri Mahato. The author took a lot of pain to study the earlier literary documents of the revolts of these people and to present the vivid significances of the social institutions of these people he made extensive field work in the said area. He has become successful impresenting the socio-political and cultural history of the people of the Jharkhand area from the historic past up to modern time.

Impresenting the gradual development of the socio-cultural history of the people of the Jharkhand the author has divided the book into two major chapters in chronological sequences. In the first chapter he stringed the different revolt such as 'Chuar Bidroho' 'Santal Bidroho', 'Khotrio Andolon' etc. in eight sub chapters. Going through these chapters reader will be in a positon to assess how Jharkhand people struggled from time in memorial to establish their rights and cultural solidarity. This anthropological analysis of the struggles of these people can be able to make, the learned people of our country well versed to understand the social sentiments of economically depressed prehistoric people of the area. Sri Mahato's affort has become successful so far as I understand.

In chapter II, where the different aspects of life of the people of the Jharkhand have been analysed. In eighteen sub-chapters the author covered almost all social insti-tutions of the inhabitants of Jharkhand. He successfully depicted the demography and racial history along with the different phases of social crisis and mode of assimitation too.

Very effeciently and scholastically he presented his observations on the folk songs, dance and music. He analysed the relation between the famous 'Jhumur Song' and 'Chhodance' of these people. He also tried to analyse the social stratification of the people; who make these performances and at the same time to focus the social significances of the "Chhodances". A good number of scholars' superfluous statements on the "Chhodances" have become pale after the publication of Sri Mahato's anthropological reviews on it.

He established very successfully how yongstars of this area are receiving training in different phases of life through hunting ceremony.

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This book is an excellent representation of the socio-cultural history of the people of the Jharkhand which could be much more commendable to the sholars, who are interested to study the life and world view of the people of this area, if the sacred aspects of the culture could be covered in nutshell. Sacred and profane aspects of culture should be studied thoroughly in presenting socio-cultural history of any community. This book is indeed helpful guide to research workers of the particular field.

A. K. CHATTERJEE

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Compiled
1999-2000

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